Acer Altos R510

User's Guide

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Acer Altos R510
User's Guide

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Notices

FCC notice

Class A devices do not have an FCC logo or FCC IDE on the label. Class B devices have an FCC logo or FCC IDE on the label. Once the class of the device is determined, refer to the following corresponding statement.

Class A equipment

This device has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This device generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this device in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, which can be determined by turning the device off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the device and receiver
- Connect the device into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/television technician for help

Shielded cables

All connections to other computing devices must be made using shielded cables to maintain compliance with FCC regulations.

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Peripheral devices

Only peripherals (input/output devices, terminals, printers, etc.) certified to comply with the Class A or Class B limits may be attached to this equipment. Operation with noncertified peripherals is likely to result in interference to radio and TV reception.

Caution: Changes or modifications not expressly approved by the manufacturer could void the user's authority, which is granted by the Federal Communications Commission, to operate this server.

Use conditions

This part complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

警告使用者:
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，
在這種情況下，使用者會被要求採取某些適當的對策。

Canadian users

This Class A/Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Laser compliance statement

The CD-ROM drive in this server is a laser product. The CD-ROM drive's classification label (shown below) is located on the drive.

CLASS 1 LASER PRODUCT
CAUTION: INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.

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Important safety instructions

Read these instructions carefully. Save these instructions for future reference.

1 Follow all warnings and instructions marked on the product.

2 Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

3 Do not use this product near water.

4 Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.

5 Slots and openings on the back or bottom side of the chassis are provided for ventilation; to ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register, or in a built-in installation unless proper ventilation is provided.

6 This product should be operated from the type of power indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.

7 Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord.

8 If an extension cord is used with this product, make sure that the total ampere rating of the equipment plugged into the extension cord does not exceed the extension cord ampere rating. Also, make sure that the total rating of all products plugged into the wall outlet does not exceed the fuse rating.

9 Never push objects of any kind into this product through chassis slots as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

10 Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage points or other risks. Refer all servicing to qualified service personnel.

11 Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

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a When the power cord or plug is damaged or frayed

b If liquid has been spilled into the product

c If the product has been exposed to rain or water

d If the product does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal condition.

e If the product has been dropped or the cabinet has been damaged

f If the product exhibits a distinct change in performance, indicating a need for service.

12 Replace the battery with the same type as the product's battery we recommend. Use of another battery may present a risk of fire or explosion. Refer battery replacement to a qualified service technician.

13 **Warning!** Batteries may explode if not handled properly. Do not disassemble or dispose of them in fire. Keep them away from children and dispose of used batteries promptly.

14 Use only the proper type of power supply cord set (provided in your accessories box) for this unit. It should be a detachable type: UL listed/CSA certified, type SPT-2, rated 7A 125V minimum, VDE approved or its equivalent. Maximum length is 15 feet (4.6 meters).

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Contents

Notices iii
- FCC notice iii
- Class A equipment iii
- Shielded cables iii
- Peripheral devices iv
- Use conditions iv
- Canadian users iv
- Laser compliance statement iv

Important safety instructions v

1 System information 1

Product briefing 3
- Processor 3
- Memory subsystem 3
- Storage 4
- Graphics interface 4
- Networking 4
- I/O ports 4

Caring features 5

Product specification summary 6

2 System tour 7

System board 9
- Connector and Header Locations 9
- Configuration Jumpers 11
- Serial Port Configuration Jumper 12
- BIOS Select Jumper 13
- Back Panel Connectors 14
- External and internal structure 16
  - Front view (with bezel) 16
  - Front view (w/o bezel) 16
- Front panel 17
  - Front Panel LED and Buttons description 17
  - Control Button Functions 18
  - LED Indicator Status 18
- Rear view 20
- Optional Peripherals 21
- Internal components 22

3 Getting Started 23

Setting up the system 25
- Preinstallation requirements 25

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Selecting a site 25
Checking the package contents 25
System startup 26
Turning on the system 26
Turning off the system 26
Power-on problems 27

4 Configuring the system 29
Upgrading the system 31
Installation precautions 31
ESD precautions 31
Preinstallation instructions 31
Post-installation instructions 32
Opening the server 33
Before opening the server 33
Removing the Chassis Cover 33
Installing the Chassis Cover 35
Removing and Installing the Front Bezel 36
Removing the Front Bezel 36
Installing the Front Bezel 36
Removing and Installing the Processor Air Duct 37
Removing the Processor Air Duct 37
Installing the Processor Air Duct 37
Removing and Installing the Air Baffle 38
Removing the Air Baffle 38
Installing the Air Baffle 40
Installing and Removing a Hard Disk Drive 41
Installing a Fixed SATA Hard Disk Drive 41
Removing a Fixed SATA Hard Disk Drive 46
Installing a SATA or SCSI Hot-swap Hard Disk Drive 48
Removing a SATA or SCSI Hot-swap Hard Disk Drive 50
Installing or Removing a Floppy Drive 52
Installing a Floppy Drive into Slimline Bay (Backplane Installed)52
Removing a Floppy Drive from the Slimline Bay (Backplane Installed) 55
Installing a Floppy Drive into Slimline Bay (No Backplane Installed) 55
Removing a Floppy Drive from the Slimline Bay (No Backplane Installed) 60
Installing a Floppy Drive into the Converted Hard Drive Bay (Backplane Installed) 61
Removing a Floppy Drive from the Converted Hard Drive Bay64
Installing or Removing a DVD/CD-RW or CD-ROM Drive 66

Downloaded from www.Manualslib.com manuals search engine

Installing a DVD/CD-RW or CD-ROM Drive into Slimline Bay (Backplane Installed) 66
Removing a DVD/CD-RW or CD-ROM Drive from the Slimline Bay (Backplane Installed) 68
Installing DVD/CD-RW or CD-ROM Drive into Slimline Bay (No Backplane Installed) 69
Installing and Removing a PCI Riser Connector 72
Installing a PCI Riser Connector 72
Removing a PCI Riser Connector 74
Installing and Removing a PCI Add-in Card 76
Installing a PCI Add-in Card 76
Removing a PCI Add-in Card 77
Installing and Removing the SATA or SCSI Backplane (Optional) 79
Removing the SATA or SCSI Backplane 79
Installing the SCSI or SATA Backplane 80
Processor Installation and Upgrade 83
Installing or Replacing the Processor 83
Installing the Processor 83
Installing the Heat Sink(s) 85
Removing a Processor 86
Memory Installations and Upgrade 87
Upgrading the system memory 87
Memory Sparing 89
Installing and Removing Memory 90
Installing DIMMs 90
Removing DIMMs 91

5 BIOS setup 93
Using the BIOS Setup Utility 95
Entering BIOS 95
If You Cannot Access Setup 95
Setup Menus 95
BIOS Setup Utility 96
BIOS Setup Keyboard Command Bar Options 97
Main 99
Advanced 101
Upgrading the BIOS 138
Preparing for the Upgrade 138
Recording the Current BIOS Settings 138
Obtaining the Upgrade 139
Upgrading the BIOS 139
Clearing the Password 139
Clearing the CMOS 140

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6 Troubleshooting 143
Resetting the System 145
Problems following Initial System Installation 145
First Steps Checklist 145
Hardware Diagnostic Testing 146
Verifying Proper Operation of Key System Lights 147
Confirming Loading of the Operating System 147
Specific Problems and Corrective Actions 147
Power Light Does Not Light 148
No Characters Appear on Screen 148
Characters Are Distorted or Incorrect 149
System Cooling Fans Do Not Rotate Properly 150
Diskette Drive Activity Light Does Not Light 150
CD-ROM Drive or DVD/CD-RW Drive Activity Light Does Not Light 150
Cannot Connect to a Server 151
Problems with Network 151
System Boots when Installing PCI Card 152
Problems with Newly Installed Application Software 152
Problems with Application Software that Ran Correctly Earlier 152
Devices are not Recognized under Device Manager (Windows* Operating System) 153
Hard Drive(s) are not recognized 153
Bootable CD-ROM Is Not Detected 154
155

Appendix A: Management software installation 157
Installing ASM 159
System requirements 159
ASM Agent 159
ASM Console 159
System setup 159
Installing ASM Agent (Windows version) 159
Installing ASM Console (Windows version) 160
Installing ASM Agent (Linux version) 160

Appendix B: Tool-less rail kit installation 163
Tool-less rail kit installation 165
Setting the Multi-Pin Adapters for Rack Type 165
Installing the Slide Rails into the Rack 166
Installing the Component into the Slide Rails 168
Cable Management ARM installation 169

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Required Installation Position of the CMA 170
Installing the CMA on the Slide Rails 171
Placing and Securing Cabling Within the CMA 172
General Safety Information 173

Appendix C: Sensor Table 175
Sensor Table 177

Appendix D: SATA RAID Configuration 179
Configuring the onboard SATA RAID 181
How to enable the onboard SATA RAID function 181
Loading the BIOS default setting 181
Enabling the onboard SATA RAID function 181
How to create RAID 1 volume 181
Enter the onboard SATA RAID Configuration Utility181
Loading onboard SATA RAID default setting 181
Creating RAID 1 volume 182
Initialising RAID Volume 182
Saving and Exiting the Embedded RAID Configuration Utility 183

Index 185

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1 System information

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The Acer Altos R510 is a rack optimised dual processor system loaded with features. The system uses next generation technology to offer excellent performance for cost sensitive applications.

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Product briefing

This section provides basic information concerning the configuration of your Altos R510 system.

Processor

- Single or dual Intel® Xeon™ processors with 800 MHz FSB
- CPU Hyper-Threading™ Technology support
- Supports Extended memory 64bit technology (EM64T)

Memory subsystem

- Six (184 - pin) DIMM slots
- DDR-1 333 MHz registered memory modules supported
- Maximum upgrade - 12 GB
- 2-way memory interleaving supported
- SDDC (Single Device Data Correction) for memory error detection and correction of any number of bit failures in a single x4 memory device
- Memory sparing technology
  - When memory sparing is enabled, the spare DIMM will not be detected by OS
  - The sparing DIMM will be reserved for standby purposes and cannot be accessed by the system[1]
- Please refer to page116 "Memory Configuration Sub-menu Selections" for more information about configuring the memory sparing in the BIOS Setup utility

[1] For example, if six 1GB DIMMs are installed (6 GB memory) only 4GB of memory (in DIMM 1B, 1A, 2B, 2A) can be accessed by the system. Memory in DIMM 3B and DIMM 3A would be reserved as spare DIMMs

Caution! When using multiple memory modules it is recommended that you AVOID using modules from different manufacturers or that run at different speeds from each other.

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Warning! Functionality issues may be encountered if mixed memory types are installed on the same server board. DIMM modules of identical type, banking and stacking technology, and vendor should be installed in the Altos R510.

Storage

- Slim-type IDE CD-ROM/DVD-ROM drive
- Slim-type 3.5 inch Floppy disk drive (optional)
- Support for three (max) SCSI hard disk drives 146 * 3 = 438GB or three SATA hard disk drives 200 * 3 = 600GB

Warning: If FDD and CD-ROM are installed, R510 would support 2 hard disk drives only.

Graphics interface

- On-board ATI Rage XL video controller with 8MB SDRAM

Networking

- Two Integrated Gigabit Ethernet connections
  - Intel 82541PI Gigabit Ethernet LAN controller
  - Marvell 88E8050 Gigabit Ethernet LAN Controller

I/O ports

- Front
  - One USB 2.0 port
  - One SVGA video port
- Rear
  - One USB 2.0 port
  - Two PS/2 ports (keyboard/mouse)
  - Two LAN ports (RJ-45)
  - One SVGA video port

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Serial ATA ports

- Two SATA ports

Service ID

- Front service ID button
  - Front and rear service ID LED

Operating Systems supported

- Microsoft® Windows® Server 2003
- Red Hat Enterprise Linux 3.0
- Novell NetWare 6.5
- SCO Unixware 7.1.4
- SCO OpenServer 5.0.7

RAID (Optional)

- Embedded SATA Software RAID 0,1 supported

Caring features

Part of Acer's mission, as a company that cares about its end users, is to provide features that make operation, maintenance, and upgrading your system simpler and faster. The Altos R510 is no exception to this rule. The following features and options are provided.

- Cost efficient operation in a value oriented package
- Tool-less design
- Front accessible USB and VGA ports
- Acer EasyBUILD™ for efficient system setup and installation
- Acer Server Manager (ASM) suite of comprehensive management tools
- Flexibility for future expansion

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Product specification summary

Highlighted below are the system's key features:

- Single or dual Intel® Xeon™ processor supporting Hyper-Threading Technology
- 800 MHz FSB supports processor speeds from 3.6 GHz and above
- Intel® E7320 chipset consisting of:
  - Intel® E7320 Memory Controller Hub (MCH)
  - Intel® 6300ESB I/O Controller Hub (ICH)
- Supports two PCI riser cards
  - Low Profile: One 66/66MHz/3.3V PCI-X slot
  - One full height riser slot supporting one of two riser card options:
  - Option 1: One 64-bit/66MHz/3.3V PCI-X slot
  - Option 2: One (x4) PCI-Express slot
- Six DIMM sockets supporting DDR-1 333 registered ECC modules for a maximum memory capacity of 12 GB
- Media storage
  - Optional slim-type 3.5 inch 1.44 MB floppy drive or Optical drive
- Additional media storage capacity
  - Support for three 3.5 Inch SATA, or SCSI hard disk drives
- External ports
  - PS/2 keyboard and mouse ports
  - Two USB ports (1 front, 1 rear)
  - Two LAN (RJ-45) ports
  - 2 SVGA video ports (1 front, 1 rear
- Power supply unit (PSU)
  - One 450W power supply
- Chassis Intrusion
  - Chassis intrusion switch
  - Lock attach point for chassis cover
- Up to five system fans
  - Four dual rotor plus one single rotor system fans
  - Tool less fan replacement
- LEDs
  - Standard Control Panel: NIC1 Activity, NIC2 Activity & Power / Sleep
  - System Status LEDs can be viewed with bezel closed
  - Service ID

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2 System tour

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This chapter provides locations of various components and ports and instructions on how to set up the system.

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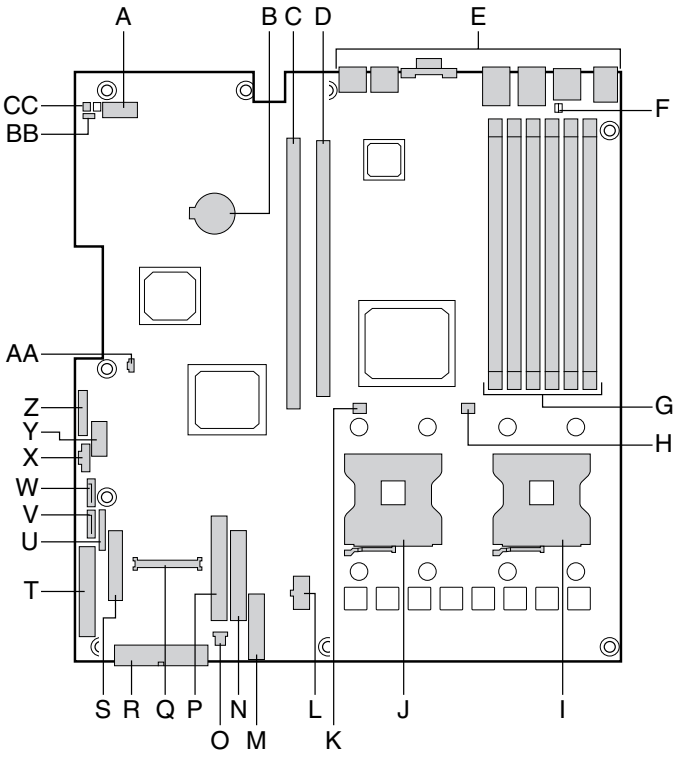
System board

Connector and Header Locations

The mainboard of the R510 becomes accessible once you open the system. The figure below is provided to help you indentify and locate connectors, slots and ports.



Item	Description
A	Serial Port A
B	Battery
C	Full-height PCI slot
D	Low-profile PCI slot
E	Back panel I/O ports
F	serial port selection jumper

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Item	Description
G	DIMM sockets (DIMM 1B, 1A, 2B, 2A, 3B, and 3A)
H	Processor 1 fan header
I	Processor 1 socket
J	Processor 2 socket
K	Processor 2 fan header
L	+12V processor power connector
M	Fan board connector
N	Floppy connector
O	PCI fan connector
P	IDE connectors
Q	100-pin Floppy/Front Panel/ATA connector
R	Main power connector
S	50-pin front panel connector
T	34-pin front panel connector
U	Configuration jumpers
V	SATA 1 connector
W	SATA connector
X	Power supply connector
Y	OEM RMC connector
Z	Power supply connector
AA	IDE power connector
BB	BIOS Select jumper
CC	Chassis intrusion header

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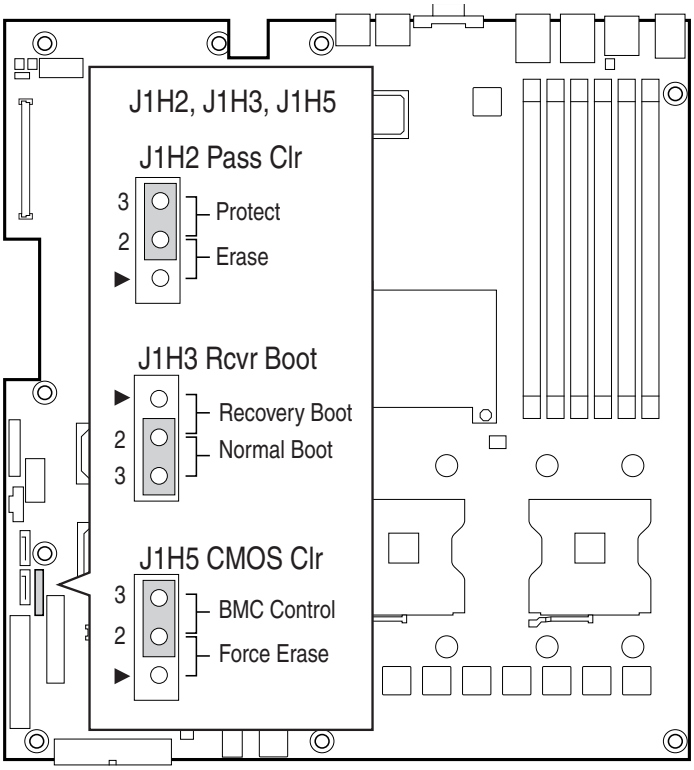
Configuration Jumpers



Jumper Name	Pins	What happens at system reset??
J1H2 Password Clear	1-2	If these pins are jumpered, administrator and user passwords will be cleared on the next reset. These pins should **not** be jumpered for normal operation.
	2-3	These pins should be jumpered for normal system operation
J1H3 Recovery Boot	1-2	If these pins are jumpered, the system will attempt to recover the BIOS by loading the BIOS code into the flash device from a floppy disk. This jumper is typically used when the BIOS has become corrupted. These pins should not be jumpered for normal operation.
	2-3	These pins should be jumpered for normal system operation.

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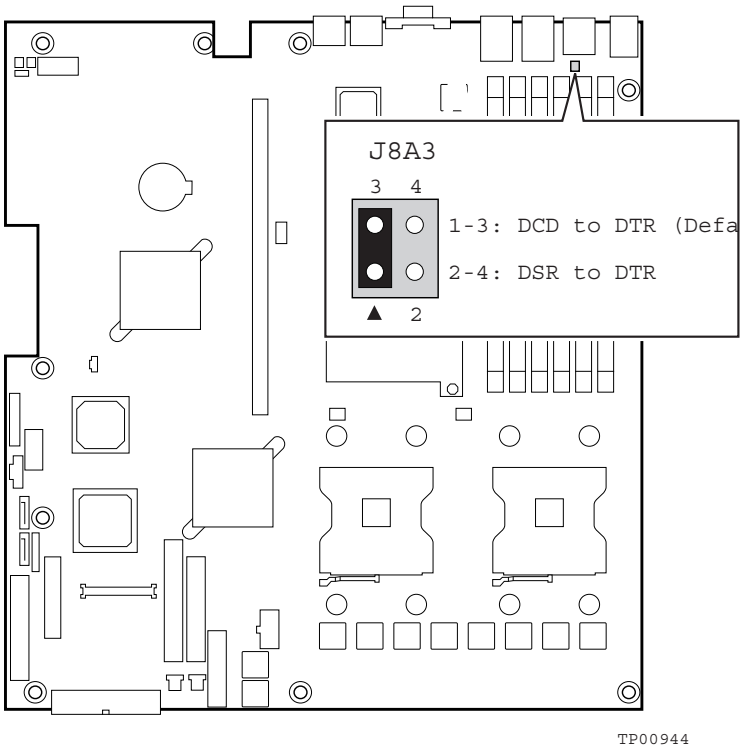
Jumper Name	Pins	What happens at system reset??
J15H CMOS Clear	1-2	If these pins are jumpered, the CMOS settings will be cleared on the next reset. These pins should not be jumpered for normal operation.
	2-3	These pins should be jumpered for normal system operation.

Serial Port Configuration Jumper



Pins	What happens at system reset??
1-3	Serial port is configured for DCD to DTR (default)
2-4	Serial port is configured for DSR to DTR

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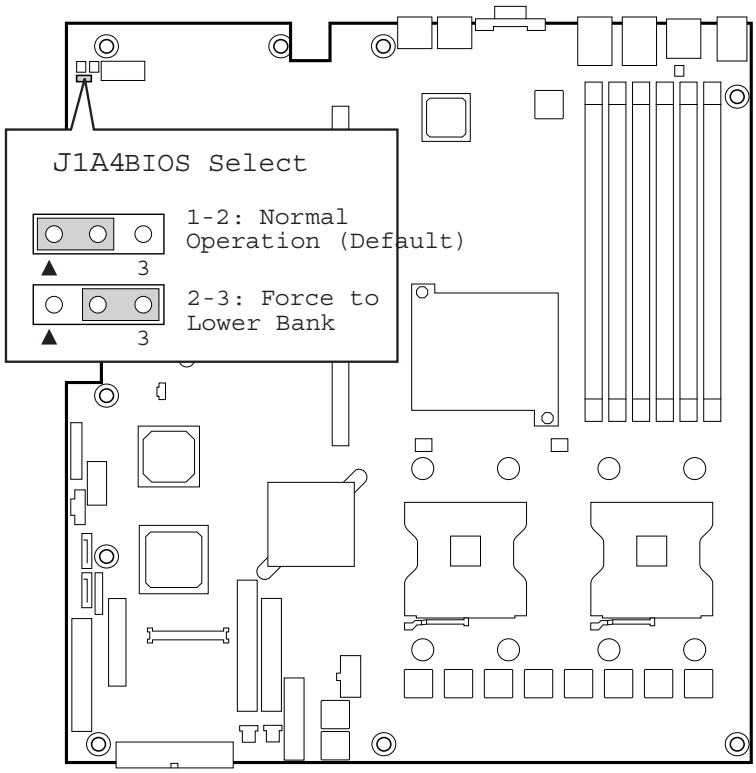
BIOS Select Jumper



Pins	What happens at system reset??
1-2	System is configured for normal operation
2-3	Force BIOS to lower bank

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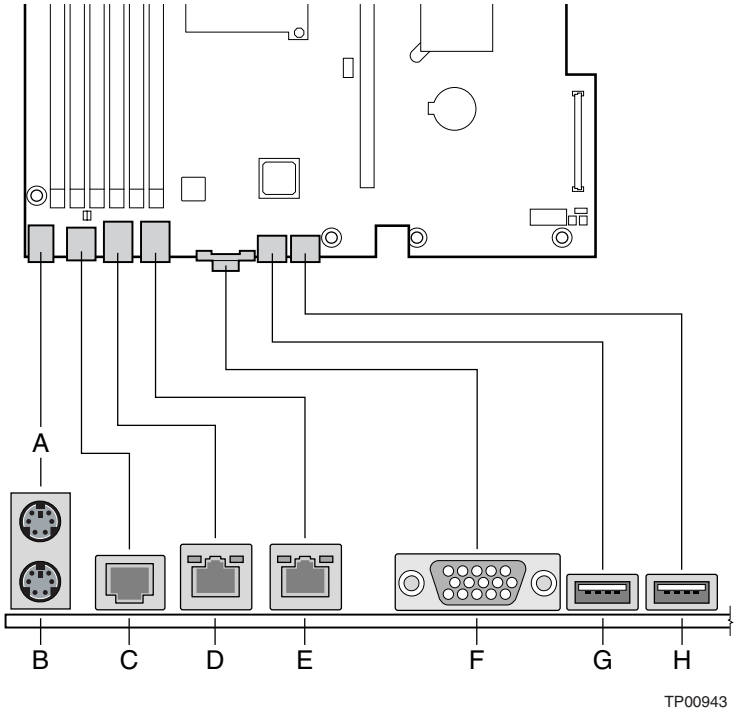
Back Panel Connectors



Item	Description
A	PS/2 Mouse port
B	PS/2 Keyboard port
C	Com Port (RJ-45 connector)
D	Gigabit LAN # 1 Port (RJ45)
E	Gigabit LAN # 2 Port (RJ45)
F	Video Port
G	USB port #1
H	USB port #2

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The NIC LEDs at the right and left of each NIC provide the following information.

LED Color	LED State	Description
Left LED	Off	No network connection
Left LED	Solid Amber	Network connection in place
Left LED	Blinking Amber	Transmit/receive activity
Right LED	Off	10 Mbps connection (if left LED is on or blinking)
Right LED	Solid Amber	100 Mbps connection
Right LED	Solid Green	1000 Mbps connection

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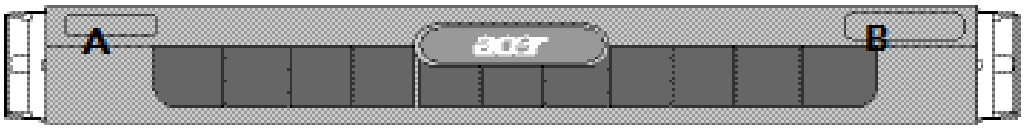
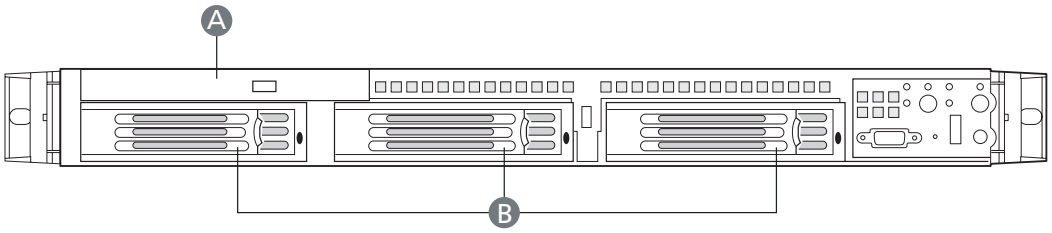
External and internal structure

Front view (with bezel)



No.	Description
A	Name Plane
B	LEDs

Front view (w/o bezel)



No.	Description
A	Slimline DVD/CD-RW, CD-ROM or FDD Bay
B	3.5” HDD Bay

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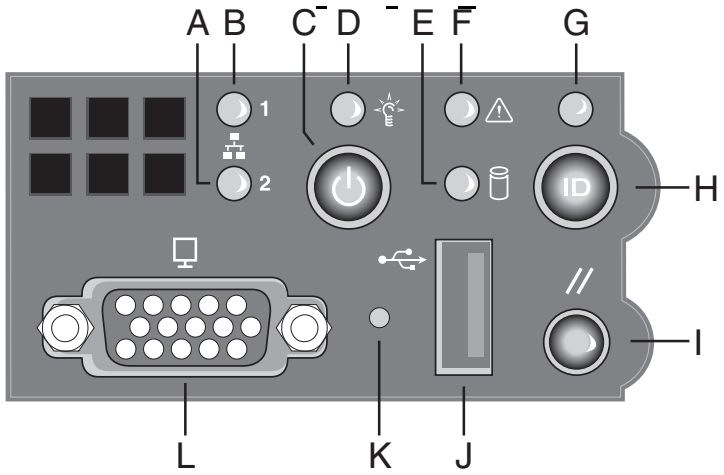
Front panel



Front Panel LED and Buttons description

Item	Description
A	LAN #2 Activity LED
B	LAN #1 Activity LED
C	Power button
D	Power LED
E	Hard Drive Activity LED
F	System Status LED
G	Service ID LED
H	Service ID Button
I	System Reset Button
J	USB connector
K	Recessed NMI Button (Tool Required)
L	VGA connector

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Control Button Functions

Item	Description
Power/ Sleep button	Toggles the system power on/off. Sleep button for ACPI-compatible operating systems.
Reset button	Reboots and initializes the system.
ID button	Toggles the front panel ID LED and the baseboard ID LED on and off. The baseboard LED is visible from the rear of the chassis and allows you to locate the server from the rear of a rack of systems.
NMI button	Puts the server in a halt-state for diagnostic purposes.

LED Indicator Status

Item	Description
NIC 1 activity LED NIC 2 activity LED	Continuous green light indicates a link between the system and the network to which it is connected. Blinking green light indicates network activity.
Power/Sleep LED	Continuous green light indicates the system has power applied to it. Blinking green indicates the system is in S1 sleep state (see Note) No light indicates the power is off / is in ACPI S4 or S5 state.
Hard disk drive status LED	Random blinking green light indicates hard disk drive activity (SATA). No light indicates no hard disk drive activity.
System Status LED	Solid green indicates normal operation Blinking green indicates degraded performance Solid amber indicates a critical or non-recoverable condition Blinking amber indicates a non-critical condition No light indicates POST is running or the system is off (see Note 1)

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Item	Description
System Identification LED	Solid blue indicates system identification is active No light indicates system identification is not activated

Note: If the system is powered down without going through the BIOS, the LED state that was in effect at the time of the power-down is restored when the system is powered back on or until the BIOS clears the LED. If the system is not powered down normally, the Power LED may blink and the System Status LED may be off due to a failure or configuration change that prevents the BIOS from running.

Note: After you press the Service ID button, the Service ID LED will blink 15 times and turn off automatically. You can only turn it off through ASM 6.0.

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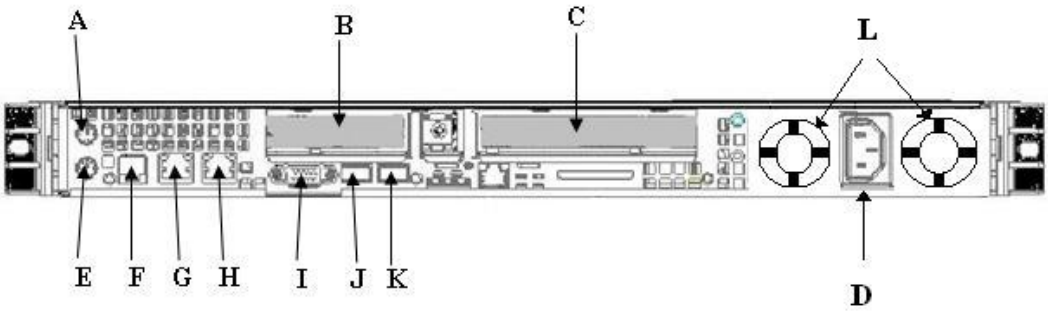
Rear view



Item	Description
A	PS2 Mouse Port
B	Low profile PCI card bracket
C	Full height PCI card bracket
D	AC Power receptacle
E	PS2 keyboard Ports
F	RJ45 Serial B port
G	LAN #1 Connector
H	LAN #2 Connector
I	Video Connector
J	USB #1 Connector
K	USB #2 Connector
L	Power Supply Fans

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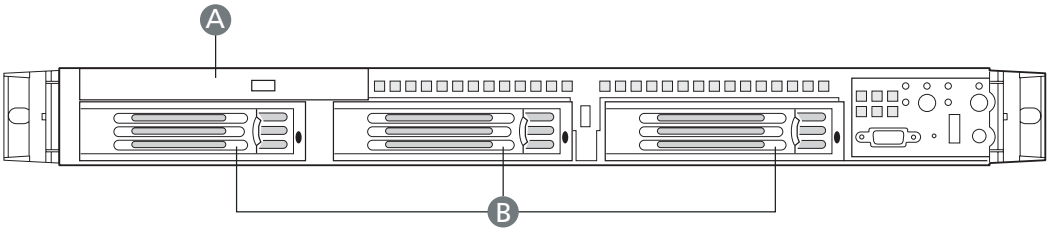
Optional Peripherals



Item	Description
A	Slim-line Device cage, support for FDD / DVD / CD-ROM drive
B	Hard Drive Bays (3)

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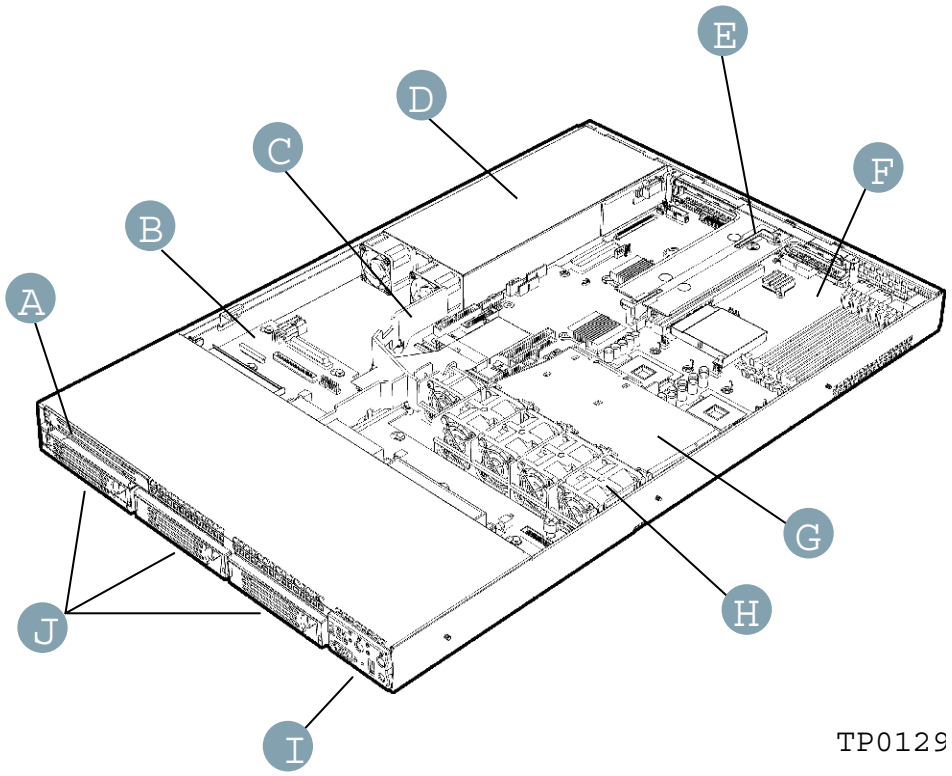
Internal components



Item	Description
A	Slimline drive bay
B	Backplane (optional)
C	Power supply air baffle
D	Power supply
E	PCI add-in card riser assembly
F	Server board
G	Processor air duct
H	Fan module
I	Control panel
J	Hard drive bays

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3 Getting Started

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This chapter gives information on setting up and starting to use your system

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Setting up the system

Preinstallation requirements

Selecting a site

Before unpacking and installing the system, select a suitable site for the system for maximum efficiency. Consider the following factors when choosing a site for the system:

- Near a grounded power outlet
- Clean and dust-free
- Stable surface free from vibration
- Well-ventilated and away from sources of heat
- Secluded from electromagnetic fields produced by electrical devices such as air conditioners, radio and TV transmitters, etc.

Checking the package contents

Check the following items from the package:

- Acer Altos R510 system
- Acer Altos R510 User's guide
- Acer EasyBUILD™
- Acer Altos R510 Accessory box

If any of the above items are damaged or missing, contact your dealer immediately.

Save the boxes and packing materials for future use.

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System startup

Turning on the system

After making sure that you have properly set up the system and connected all the required cables, you can now power on the system.

To power on the system, press the power button on the front panel. Refer to “Front view (w/o bezel)” on page 16, for help locating the power button.

The system starts up and displays a welcome message. After that, a series of power-on self-test (POST) messages appears. The POST messages indicate if the system is running well or not.

Note: If the system does not turn on or boot after pressing the power button, go to “Power-on problems” on page 27 for possible causes of boot failure.

Aside from the POST messages, you can determine if the system is in good condition by checking if the following occur during startup:

- Power indicator on the front panel lights up (green)
- Num Lock, Caps Lock, and Scroll Lock indicators on the keyboard light up

Turning off the system

To turn off the server, on the Windows task bar click on the **Start** button, point to **Shut Down...**, select **Shut down** from the drop-down window then click on **OK**. You can then turn off all peripherals connected to your server.

If you are unable to shutdown the server within Windows, press and hold the power button for at least four seconds to force quit all applications and shut down.

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Power-on problems

If the system does not boot after you have applied power, check the following factors that might have caused the boot failure.

- The external power cable may be loosely connected.

  Check the power cable connection from the power source to the power cable socket on the rear panel. Make sure that the cable is properly connected to the power source and to the power cable socket.

- No power comes from the grounded power outlet.

  Have an electrician check your power outlet.

- Loose or improperly connected internal power cables.

  Check the internal cable connections. If you are not confident to perform this step, ask a qualified technician to assist you.

Warning! Make sure all power cords are disconnected from the electrical outlet before performing this task.

Note: If you have gone through the preceding actions and the system still fails to boot, ask your dealer or a qualified technician for assistance.

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4 Configuring the system

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This chapter discusses the precautionary measures and installation procedures you need to know when upgrading the system.

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Upgrading the system

Certain components of the Altos R510 are upgradeable such as the drives, the CPU, the memory, and the expansion cards. However, for safety purposes, we do not recommend that you perform these upgrades yourself. If you want to replace or upgrade any of these components, contact your Acer dealer or a qualified service technician for assistance.

Important: Observe the installation precautions described in the subsequent section when installing or removing a server component.

Installation precautions

Before you install any server component, we recommend that you read the following sections. These sections contain important ESD precautions along with preinstallation and post-installation instructions.

ESD precautions

Electrostatic discharge (ESD) can damage the processor(s), motherboard, disk drive(s), expansion board(s), or other components. Always observe the following precautions before you install server components:

1 Do not remove a component from its protective packaging until you are ready to install it.

2 Wear a wrist grounding strap and attach it to a metal part of the server before handling components. If a wrist strap is not available, maintain contact with the server throughout any procedure requiring ESD protection.

Preinstallation instructions

Always observe the following before you install any component:

1 Turn off the system and all the peripherals connected to it.

2 Unplug all cables from the power outlets.

3 Open the system according to the instructions on page 35.

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4 Follow the ESD precautions described in this section when handling a server component.

5 Remove any expansion board(s) or peripheral(s) that block access to the DIMM socket or other component connector.

See the following sections for specific installation instructions on the component you want to install.

Warning! Failure to properly turn off the server before you start installing components may cause serious damage. Do not attempt the procedures described in the following sections unless you are a qualified service technician.

Post-installation instructions

Observe the following after installing a server component:

1 See to it that all components are installed according to the described step-by-step instructions.

2 Reinstall any expansion board(s) or peripheral(s) that you have previously removed.

3 Reinstall the chassis panels.

4 Connect the necessary cables.

5 Turn on the system.

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Opening the server

Caution! Before you proceed, make sure that you have turned off your system and all peripherals connected to it. Read the "Preinstallation instructions" on page 31.

You need to open the Altos R510 before you can install additional components. The top panel is removable to allow access to the system's internal components. Refer to the following sections for instructions.

Before opening the server

Before opening the server, observe the following precautions:

1 Turn off the system and all the peripherals connected to it.

2 Unplug all cables from the power outlets.

3 Place the system unit on a flat, stable surface.

Note: Because of the R510 design specification, the top panel needs to be removed to access the system board.

Removing the Chassis Cover

The Altos R510 Server must be operated with the top cover in place to ensure proper cooling. You will need to remove the top cover to add or replace components inside of the platform. Before removing the top cover, power down the server system and unplug all peripheral devices and the AC power cable. None of the components inside of the platform is hot-swappable.

1 Observe the safety and ESD precautions at the beginning of this book.

2 Turn off all peripheral devices connected to the server. Turn off the server.

3 Disconnect the AC power cord.

4 Remove the shipping screw (A) if it is installed.

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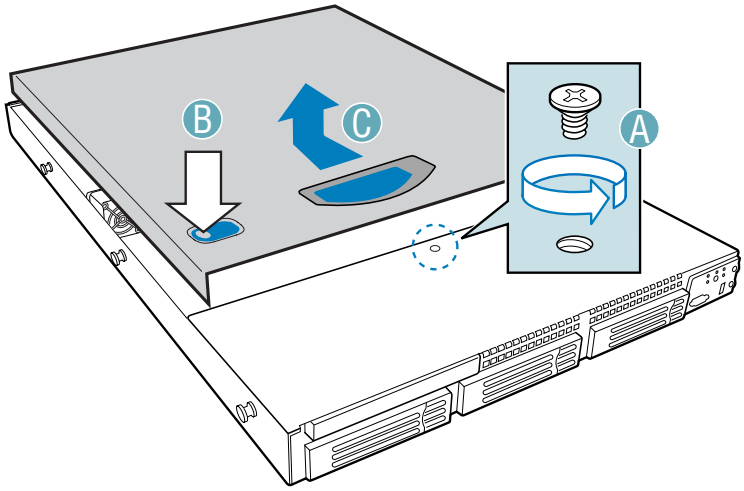
5 While holding the blue button (B) at the top of the chassis in, slide the top cover back until it stops (C).

6 Lift the cover straight up to remove it from the platform.



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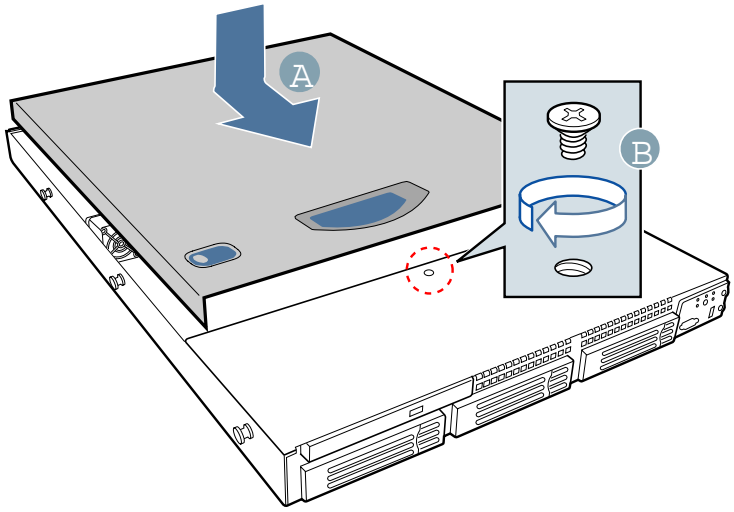
Installing the Chassis Cover

1 Place the cover over the chassis so that the side edges of the cover sit just inside the chassis sidewalls.

2 Slide the cover forward until it clicks into place (A).

3 (Optional) Insert the shipping screw (B) at the center of the top cover.

4 Reconnect all peripheral devices and the AC power cord.



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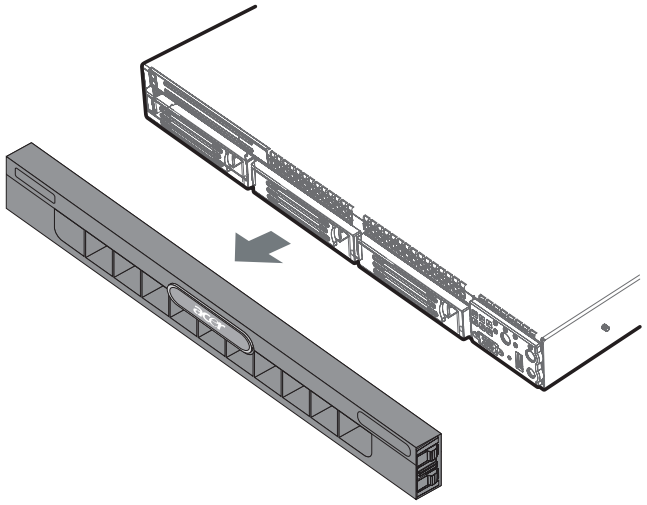
Removing and Installing the Front Bezel

Removing the Front Bezel

Use the steps below to remove the front bezel.

1 Pull the bezel out from the chassis.



Installing the Front Bezel

Use the steps below to install the Altos R510's front bezel. The front bezel is optional.

1 Push the bezel onto the front of the chassis until it clicks into place.

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Removing and Installing the Processor Air Duct

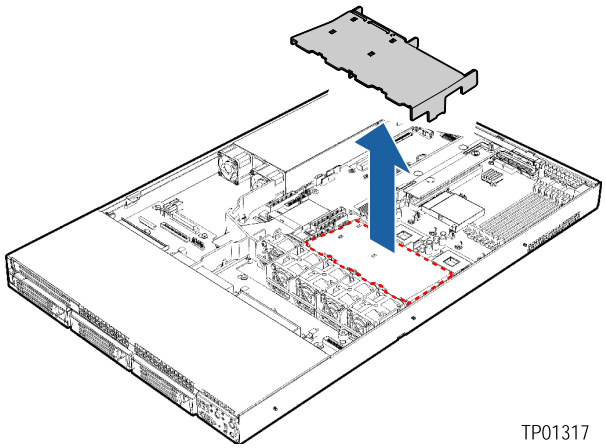
Always operate your Altos R510's chassis with the processor air duct in place. The air duct is required for proper airflow within the chassis.

For instructions on adding or replacing a processor, first remove the processor air duct and the processor air dam, and then see page 83 for instructions on processor installations and removals. Return to these instructions to reinstall the processor air dam and processor air duct after installing your processor and heat sink.

Removing the Processor Air Duct

1 Remove the chassis cover. For instructions, see "Removing the Chassis Cover."

2 Lift the processor air duct from its location over the two processor sockets.



Installing the Processor Air Duct

1 If you are installing the processor air duct for the first time after installing a second processor, break out the airflow tab over on the side of the processor air duct that will fit over the CPU2 processor socket.

2 Place the processor air duct over the two processor sockets, regardless of whether one or two processors is installed. The front edge of the air duct should contact the front fan module and the top of the installed air duct should be flush with the top surface of

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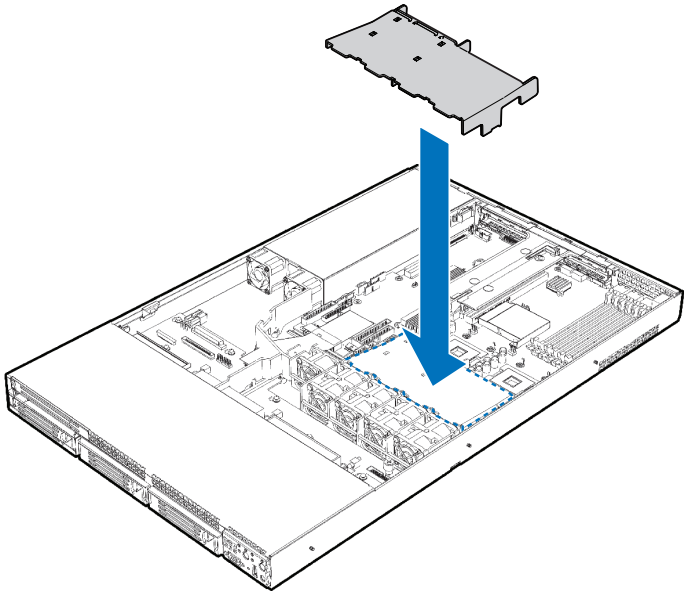
the power supply. Use caution not to pinch or disengate cables that may be near or under the air duct.



Removing and Installing the Air Baffle

Some installation processes will require that you remove the air baffle that is placed behind the hard drive bays, next to the fan module near the front of your server. The steps below describe how to remove and then install the air baffle. Use these steps only when it is indicated as necessary for a component installation process.

Always operate your R510 chassis with the air baffle in place. The air baffle is required for proper airflow within the chassis.

Removing the Air Baffle

1 Observe the safety and ESD precautions at the beginning of this book. See “Safety Information.”

2 Power down the server and unplug all peripheral devices and the AC power cable.

3 Remove the chassis cover. For instructions, see “Removing the Chassis Cover.”

4 Note how the cables are routed over and under the air baffle. You will need to re-route these cables.

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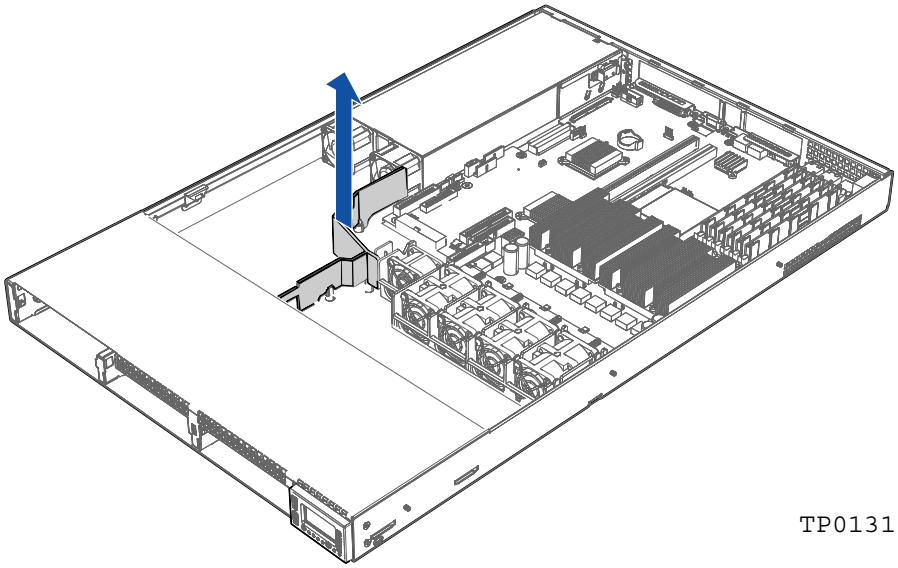
5 Pull up on the air baffle to remove it. See the figure below. You may need to remove or hold cables out of the way.



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Installing the Air Baffle

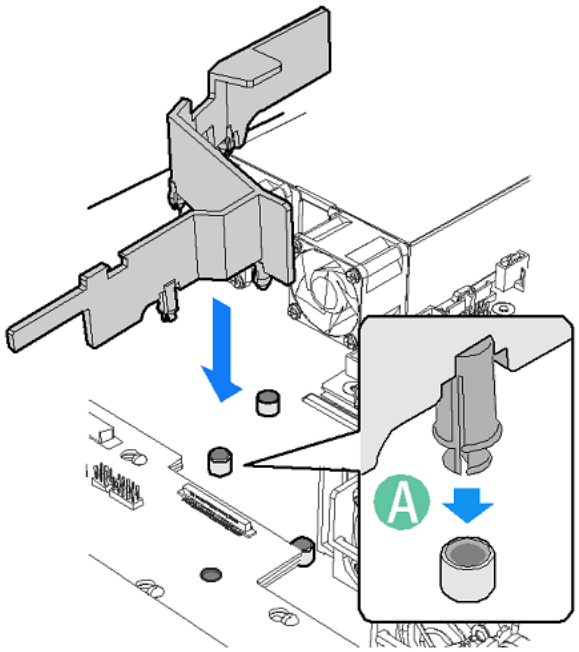
1 Lower the baffle into the chassis between the power supply and the drive bay area, to the left of the fan module.

2 While setting the baffle into place, route the cables beneath it appropriately.

3 Fit the tab that extends from the front of the baffle under the drive bay area.

4 Line up the guide pins on the baffle with the matching holes in the chassis floor and in the backplane if you have a backplane installed. See letter “A” in the figure below.

5 Push down firmly on the air baffle to secure it to the chassis.



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Installing and Removing a Hard Disk Drive

Up to three hard drives of one of the following types can be installed, depending on the hard drive installation option used in your server chassis and the drives supported by your server board.

1 Three fixed SATA drives or three fixed SCSI drives if the fixed drive kit is installed.

2 Three hot-swap SATA drives if the SATA backplane is installed.

3 Three hot-swap SCSI drives if the SCSI backplane is installed.

NOTE: The Altos R510 does not support all hard drives. Contact your local Acer dealer for details of supported hardware.

Installing a Fixed SATA Hard Disk Drive

Use these instructions only if you have installed the fixed drive kit.

CAUTION:Fixed drives are NOT hot swappable. Before removing or replacing the drive, you must first take the server out of service, turn off all peripheral devices connected to the system, turn off the system by pressing the power button, and unplug the AC power cord from the system or wall outlet.

1 Observe the safety and ESD precautions at the beginning of this book. See “Safety Information.”

2 Power down the server and unplug all peripheral devices and the AC power cable.

3 Remove the front bezel if it is installed. For instructions, see “Removing and Installing the Front Bezel.”

4 Remove the chassis cover. For instructions, see “Removing the Chassis Cover.”

5 Press the latch on the back of the fixed drive carrier and slide it out of the bay. See letter “A” in the figure below to identify the latch at the rear of the carrier.

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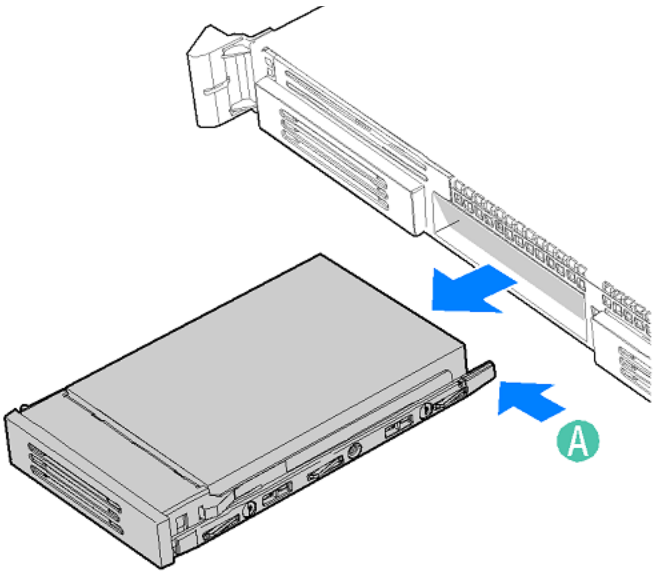
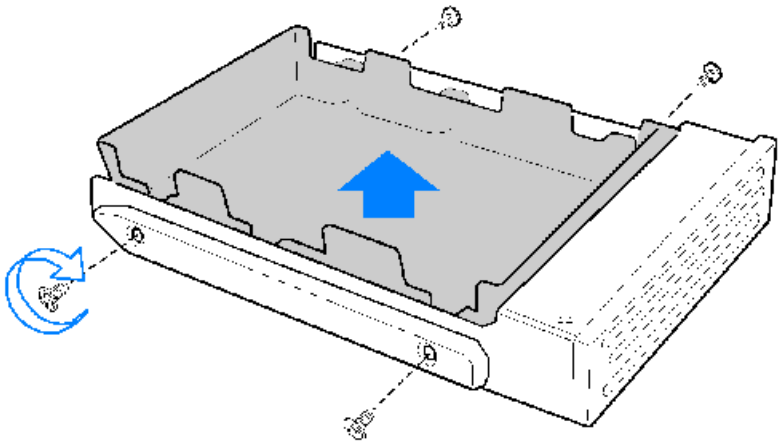


6 Remove the four screws that attach the plastic retention device or the previously installed hard drive to the drive carrier. Two screws are at each side of the retention device or the hard drive. Store the plastic retention device for future use.



7 With the drive circuit-side down, position the connector end of the drive so that it is facing the back of the carrier.

8 Attach the hard drive to the carrier using the four screws removed from the carrier.

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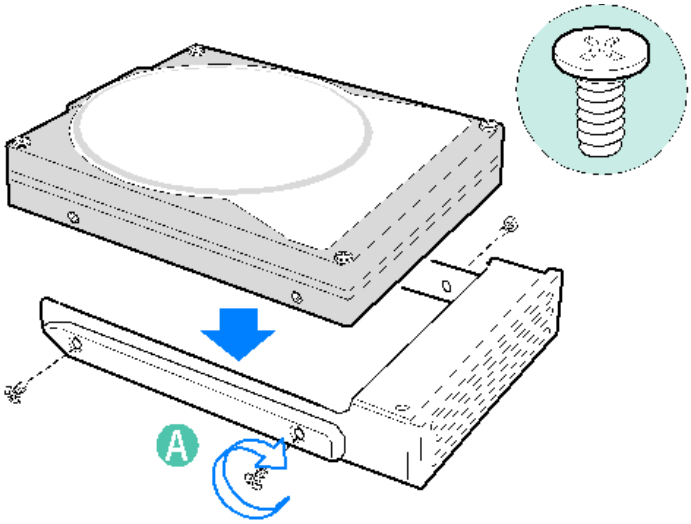
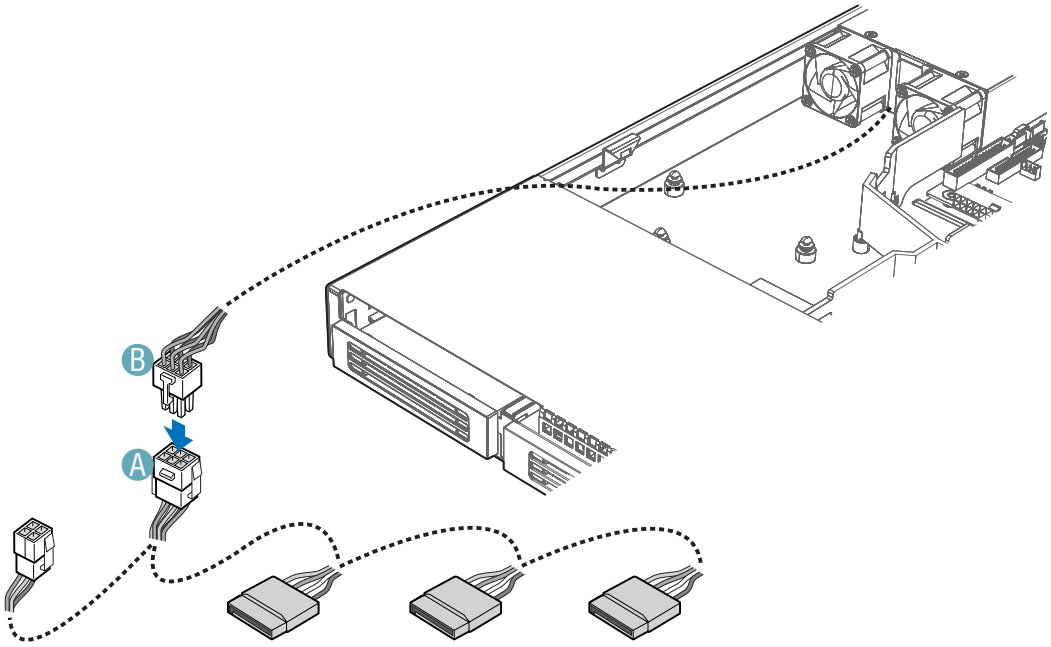


9 Insert the drive into the bay until it clicks into place.

10 If it is not already installed, connect the SATA power cable adapter to the 3x2 power supply cable that extends from your power supply. See letters “A” and “B” in the figure below. The power cable adapter was provided to you with the fixed drive kit.



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11 For each drive you install, route one SATA data cable from the server board or add-in card to the hard drive, with the right-angle end of the SATA data cable connected to the server board or add-in card SATA connector. See your server board documentation or add-in card documentation for assistance in locating the SATA connectors on the board or add-in card.

12 See letters “C”, “D”, and “E” in the figure below and the arrow that leads from them to the component in the chassis. This component is the air baffle that is referred to in the following steps. The letters “C” and “D” point to the cutouts that are referred to in the step below. The letter “E” is the tab at the top of the air baffle.

13 Data cables for drives installed to the right of the air baffle must be routed through the two cutouts in the top of the air baffle (letters “C” and “D” in the figure) and under the tab (letter “E”). The data cable for a drive installed to the left of the air baffle must be routed through the rear cutout of the air baffle (letter “D”) and under the tab (letter “E”). You may need to remove the air baffle to route the cables underneath it. To see how to remove and then install the air baffle, see “Removing and Installing the Air Baffle. “

14 Connect the loose end of the data cable to the rear of the SATA drive. See letter “A” in the figure to identify the location of the connector at the rear of the SATA drive.

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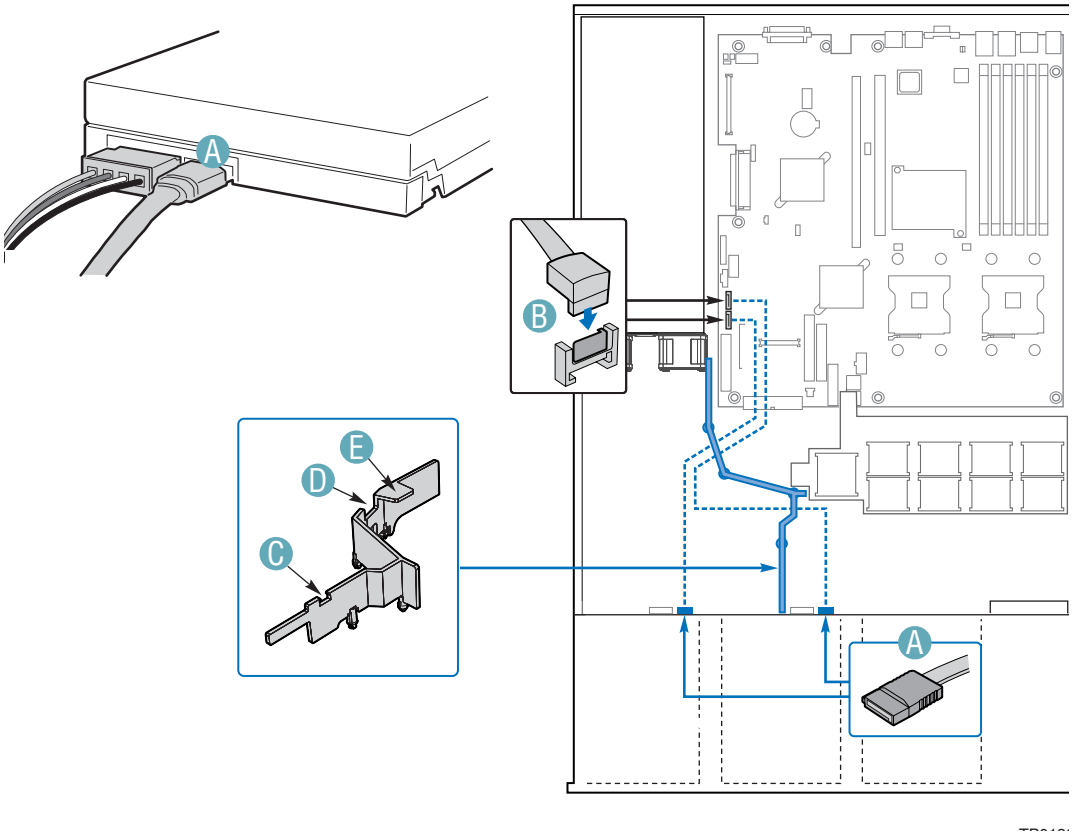

15 See letter “B” in the figure below and the arrow that leads from this letter to the component in the chassis. This component is the air baffle that is referred to in the following steps. The letter “B” points to the cutout that is referred to.

16 Power cables for drives installed to the right side of the air baffle must be routed beneath the front cutout in the underside of the air baffle. The power cable for a drive installed to the left of the air baffle does not need to be routed under the air baffle. See letter “B” in the figure below to identify the air baffle and the cutout area. You may need to remove the air baffle to route cables underneath it. To see how to remove and then install the air baffle, see “Removing and Installing the Air Baffle. ”

17 Connect the SATA power cable adapter end(s) to the rear of the SATA drive. See letter “A” in the figure below to locate the connector on the SATA drive.

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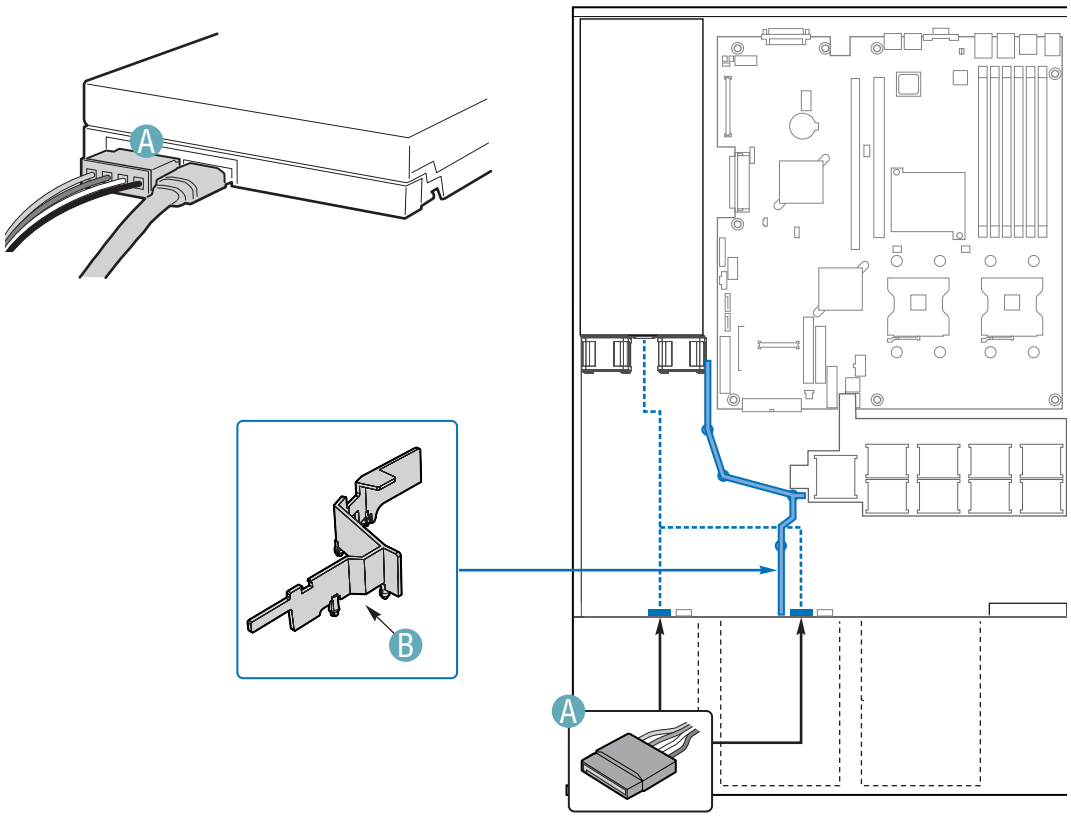

18 (Optional) Install the front bezel. For instructions, see "Removing and Installing the Front Bezel."

19 Install the chassis cover. For instructions, see "Installing the Chassis Cover."

20 Plug all peripheral devices and the AC power cable back into the server.

Removing a Fixed SATA Hard Disk Drive

CAUTION: Fixed drives are NOT hot swappable. Before removing or replacing the drive, you must first take the server out of service, turn off all peripheral devices connected to the system, turn off the system by pressing the power button, and unplug the AC power cord from the system or wall outlet.

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1 Observe the safety and ESD precautions at the beginning of this book. See “Safety Information.”

2 Power down the server and unplug all peripheral devices and the AC power cable.

3 Remove the chassis cover. For instructions, see “Removing the Chassis Cover.”

4 Remove the front bezel if it is installed. For instructions, see “Removing and Installing the Front Bezel.”

5 Disconnect the SATA data connector and power cables from the rear of the SATA drive.

6 Press the latch on the back of the fixed drive carrier and slide it out of the bay.

7 Remove the four screws that attach the hard drive to the drive carrier. Lift the drive from the carrier. Store the drive in an anti-static bag.

8 If you are not installing a new drive, place the plastic retention device into the drive carrier, using the four screws you removed from the hard drive.

9 Insert the screws that held the drive in the carrier into the screw locations on the carrier for future use.

10 Slide the drive carrier back into the chassis until it clicks into place.

NOTE:For proper airflow, the hard drive carrier must be replaced in the chassis, even if no hard drive is installed in it.

11 (Optional) Install the front bezel. For instructions, see “Removing and Installing the Front Bezel.”

12 Install the chassis cover. For instructions, see “Removing the Chassis Cover.”

13 Plug all peripheral devices and the AC power cable back into the server.

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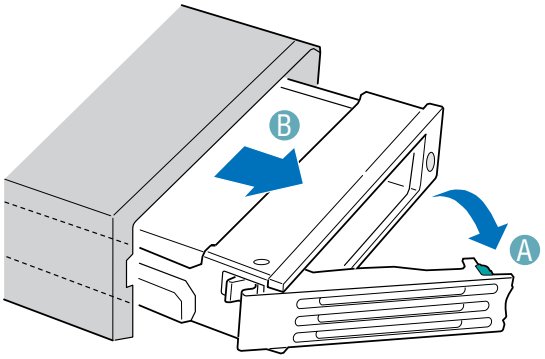
Installing a SATA or SCSI Hot-swap Hard Disk Drive

Use these instructions only if you have installed the SATA or SCSI backplane kit. Please refer to Page 79 for details of how to install the backplane.

1 Remove the front bezel if it is installed. For instructions, see "Removing and Installing the Front Bezel."

2 Press in on the green latch at the front of the hard drive carrier. See letter "A" in the figure below.

3 Pull out on the black lever and slide the carrier from the chassis. See letter "B" in the figure below.



4 Remove the four screws that attach the plastic retention device or the previously installed hard drive to the drive carrier. Two screws are at each side of the retention device or the hard drive. Store the plastic retention device for future use.

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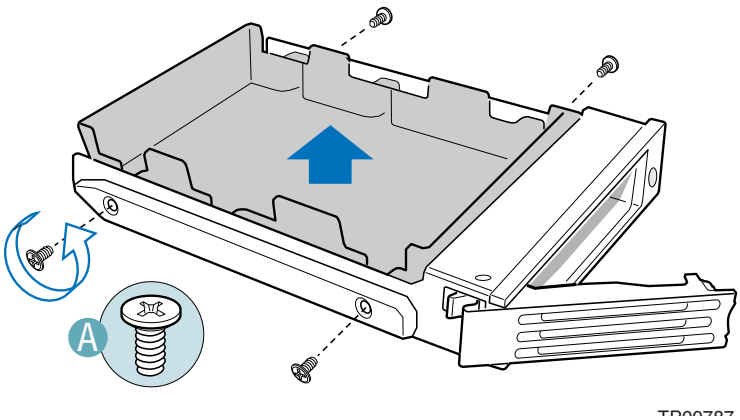

5 Remove the hard drive from its wrapper and place it on an antistatic surface.

6 Set any jumpers and/or switches on the drive according to the drive manufacturer's instructions.

7 With the drive circuit-side down, position the connector end of the drive so that it is facing the rear of the drive carrier.

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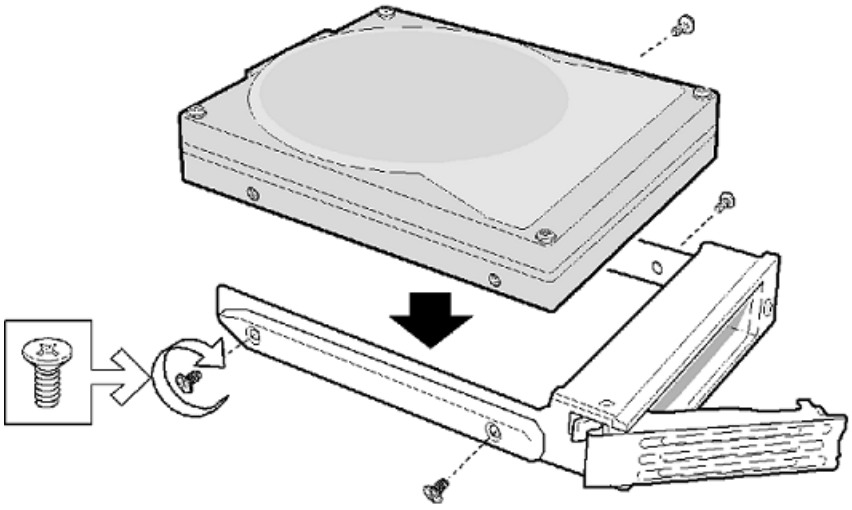
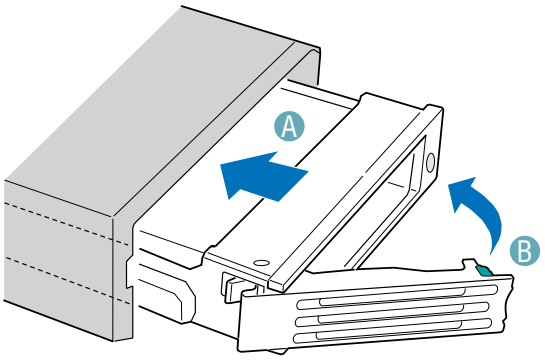
8 Align the holes in the drive to the holes in the drive carrier and attach it to the carrier with the screws that were attached to the plastic retention device.



9 With the black lever in the fully open position, slide the drive assembly into the chassis. The green latch at the front of the drive carrier must be to the right. Do not push on the black drive carrier lever until the lever begins to close by itself.

10 When the black drive carrier lever begins to close by itself, push on it to lock the drive assembly into place.

11 (Optional) Install the front bezel.



Removing a SATA or SCSI Hot-swap Hard Disk Drive

Use these instructions only if you have installed the SATA or SCSI backplane kit.

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1 Remove the front bezel if it is installed. For instructions, see "Removing and Installing the Front Bezel."

2 Press in on the green latch at the front of the hard drive carrier.

3 Pull out on the black lever to slide the carrier from the chassis.

4 Remove the four screws that attach the hard drive to the drive carrier. Lift the drive from the carrier. Store the drive in an anti-static bag.

5 If you are not installing a new drive, place the plastic retention device into the drive carrier, using the four screws you removed from the hard drive.

6 Insert the screws that held the drive in the carrier into the screw locations on the carrier for future use.

7 With the black lever in the fully open position, slide the drive carrier into the chassis. The green latch must be to the right. Do not push on the black lever until the lever begins to close by itself.

NOTE:For proper airflow, the hard drive carrier must be replaced in the chassis, even if no hard drive is installed in it.

8 When the black lever begins to close by itself, push on it to lock the drive carrier into place.

9 (Optional) Install the front bezel. For instructions, see "Removing and Installing the Front Bezel."

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Installing or Removing a Floppy Drive

Floppy drives are installed in different ways, depending on the following items:

1 The SATA or SCSI backplane is installed and you want to install the floppy drive into the slimline drive bay.

2 No backplane is installed and you want to install the floppy drive into the slimline drive bay.

3 The SATA or SCSI backplane is installed and you have installed a CD-ROM or DVD/CD-RW drive into the slimline drive bay. You want to install the floppy drive into a bay that was intended for a hard drive (optional conversion kit is required).

Look carefully at the heading titles below before beginning your installation to be sure you are following the correct instructions for your system.

CAUTION:Floppy drives are NOT hot swappable. Before removing or replacing the drive, you must first take the server out of service, turn off all peripheral devices connected to the system, turn off the system by pressing the power button, and unplug the AC power cord from the system or wall outlet.

Installing a Floppy Drive into Slimline Bay (Backplane Installed)

Use these instructions if you are installing a floppy drive into the Altos R510's slimline drive bay at the upper left side of your chassis and your system includes either the SATA or SCSI backplane. You will know if you have one of these backplanes installed if you can install either hot-swap SATA or hot-swap SCSI drives.

NOTE: The carrier for the slimline floppy drive that is used in these instructions was sent to you in the hardware kit that came with your system.

1 Observe the safety and ESD precautions at the beginning of this book. See "Safety Information."

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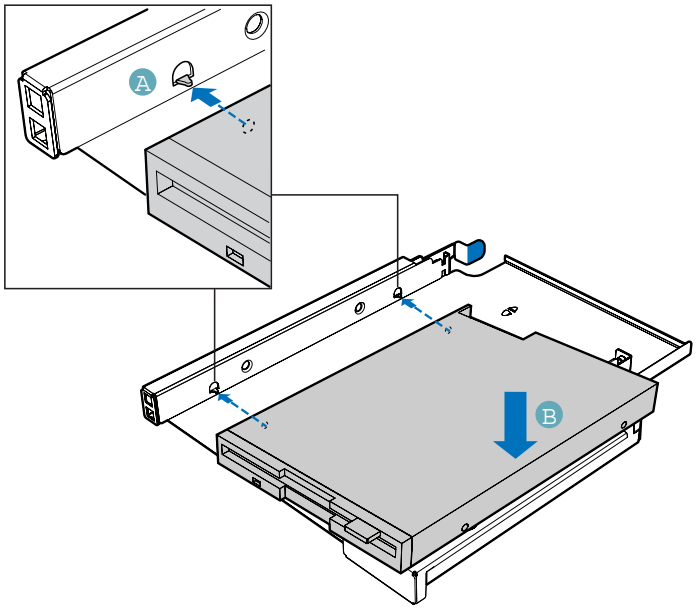
2 Power down the server and unplug all peripheral devices and the AC power cable.

3 Remove the chassis cover. For instructions, see “Removing the Chassis Cover.”

4 Remove the front bezel if it is installed. For instructions, see “Removing and Installing the Front Bezel.”

5 Align the two holes at the left side of the floppy drive with the two cutouts in the floppy drive carrier. See letter “A” in the figure below.

6 Lower the right side of the floppy drive into the carrier until it clicks into place. See letter “B” in the figure below.



7 Open the connector on the rear of the floppy drive by pulling up on the connector cover. See letter “A” in the figure below.

8 Insert one end of the 26-pin floppy drive flat flex cable end into the connector. See letter “B” in the figure below.

9 Push down on the connector cover to lock the cable into place. See letter “C” in the figure below.

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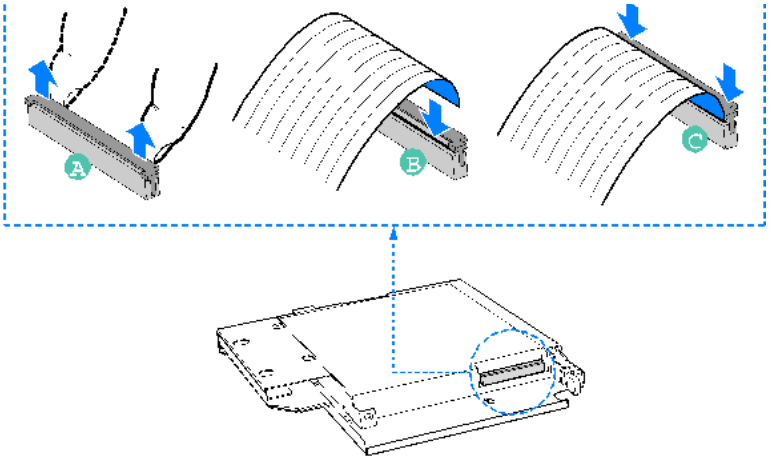


10 Slide the floppy drive assembly into the slimeline bay of the chassis until it clicks into place. See letter “A” in the figure below.

11 Open the connector labeled “Floppy Con” on the backplane by pulling up on the connector cover. See letter “B” in the figure below.

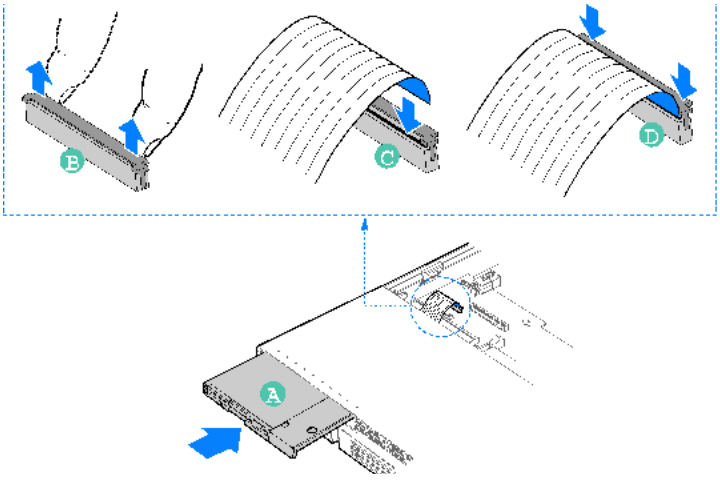
12 Insert the loose end of the floppy cable into the backplane connector. See letter “C” in the figure below.

13 Push in on the connector cover to lock the cable into place. See letter “D” in the figure below.

14 Install the chassis cover. For instructions, see “Installing the Chassis Cover.”

15 (Optional) Install the front bezel. For instructions, see “Removing and Installing the Front Bezel.”

16 Plug all peripheral devices and the AC power cable back into the server.



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Removing a Floppy Drive from the Slimline Bay (Backplane Installed)

1 Observe the safety and ESD precautions at the beginning of this book. See "Safety Information."

2 Power down the server and unplug all peripheral devices and the AC power cable.

3 Remove the chassis cover. For instructions, see "Removing the Chassis Cover."

4 Remove the front bezel if it is installed. For instructions, see "Removing and Installing the Front Bezel."

5 Pull up at the top of the connector on the backplane labeled "Floppy Con" to release the flat flex cable from it.

6 Push in on the blue lever at the rear of the drive carrier.

7 Slide the floppy drive carrier out through the front of the chassis.

8 Remove the flat flex cable from the rear of the floppy.

9 Press downward on the side of the carrier to release the drive from the drive carrier.

10 Store the floppy drive carrier and the flat flex cable for future use.

11 Install the slimline filler panel into slimline bay if no drive is to be installed into the bay.

12 Install the chassis cover. For instructions, see "Installing the Chassis Cover."

13 (Optional) Install the front bezel. For instructions, see "Removing and Installing the Front Bezel."

14 Plug all peripheral devices and the AC power cable back into the server.

Installing a Floppy Drive into Slimline Bay (No Backplane Installed)

NOTE: The carrier for the slimline floppy drive that is used in these instructions was sent to you in the hardware kit that came with your Altos R510 Server Chassis. The interposer board and floppy

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drive power adapter cable used in these instructions was sent to you with your fixed drive kit.

1 Observe the safety and ESD precautions at the beginning of this book. See "Safety Information."

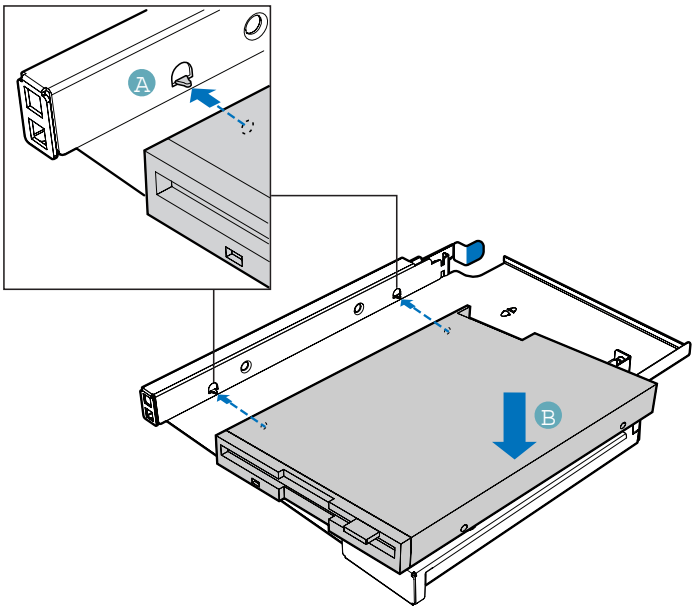
2 Power down the server and unplug all peripheral devices and the AC power cable.

3 Remove the chassis cover. For instructions, see "Removing the Chassis Cover."

4 Remove the front bezel if it is installed. For instructions, see "Removing and Installing the Front Bezel."

5 Align the two holes at the left side of the floppy drive with the two cutouts in the floppy drive carrier. See letter "A" in the figure below.

6 Lower the right side of the floppy drive into the carrier until it clicks into place. See letter "B" in the figure below.



7 Open the connector on the rear of the floppy drive by pulling up on the connector cover. See letter "A" in the figure below.

8 Insert one end of the 26-pin flat flex cable end into the connector. See letter "B" in the figure below.

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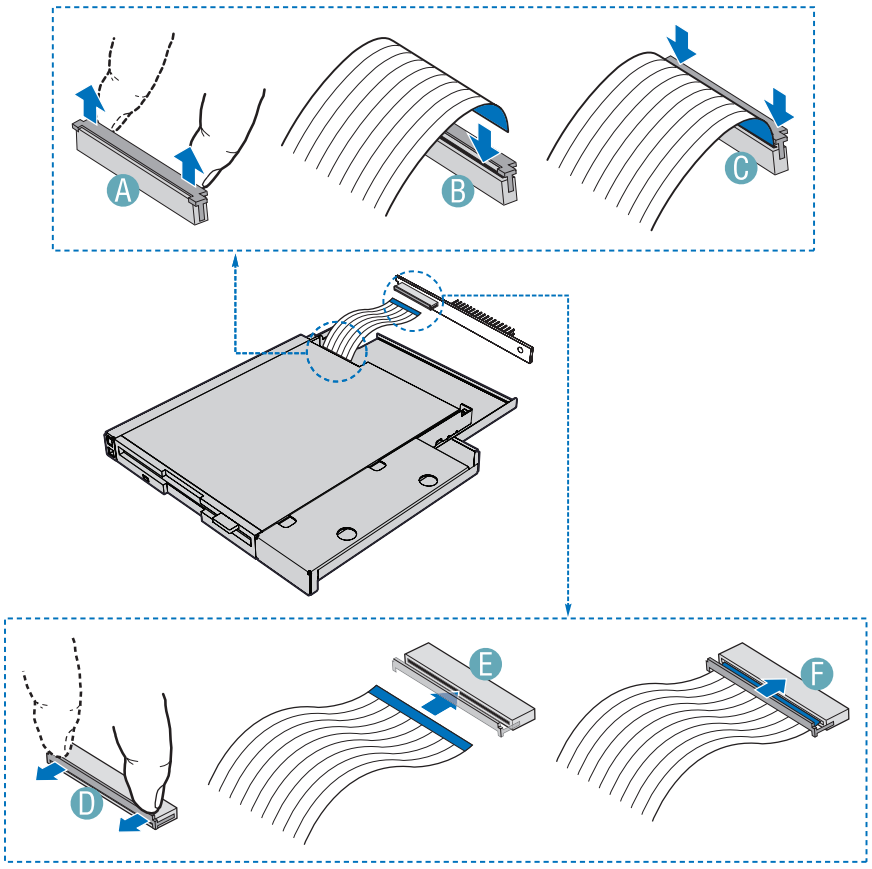
9 Push down on the connector cover to lock the cable into place. See letter “C” in the figure below.

10 Open the connector on the interposer board by pulling out on the connector cover. See letter “D” in the figure below.

11 Insert the loose end of the floppy cable into the interpose board connector. See letter “E” in the figure below.

12 Push in on the connector cover to lock the cable into place. See letter “F” in the figure below.



13 Lower the interposer board into the floppy drive tray at the rear of the floppy drive and engage the notch on the board. See Letter “A” in the figure below.

14 Attach the interposer board to floppy drive with the screw that was included with the interposer board. See letter “B” in the figure below. In the diagram, the flat flex cable been removed for clarity.

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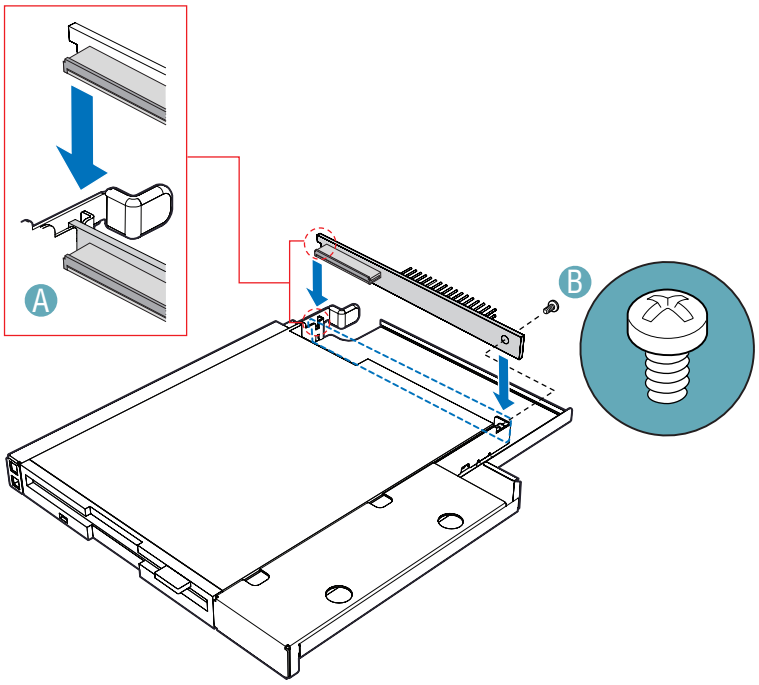

15 Slide the floppy drive assembly into the chassis until it clicks into place. See letter “A” in the figure below.

16 Connect the 2x2 end of the floppy drive power cable that was included with your kit to the 2x2 power connector on the SATA power adapter cable. See letters “B” and “C” in the figure below.

17 Connect the remaining end of the floppy drive power cable to the power connector on the rear of the floppy drive. See letter “D” in the figure.

18 Connect the floppy drive data cable that was included with your kit between the floppy drive data connector and the server board. See letters “E” and “F” in the figure. See your server board documentation for assistance in locating the connector location on the server board.

19 Route the floppy drive data cable over the air baffle, as shown in the diagram below.

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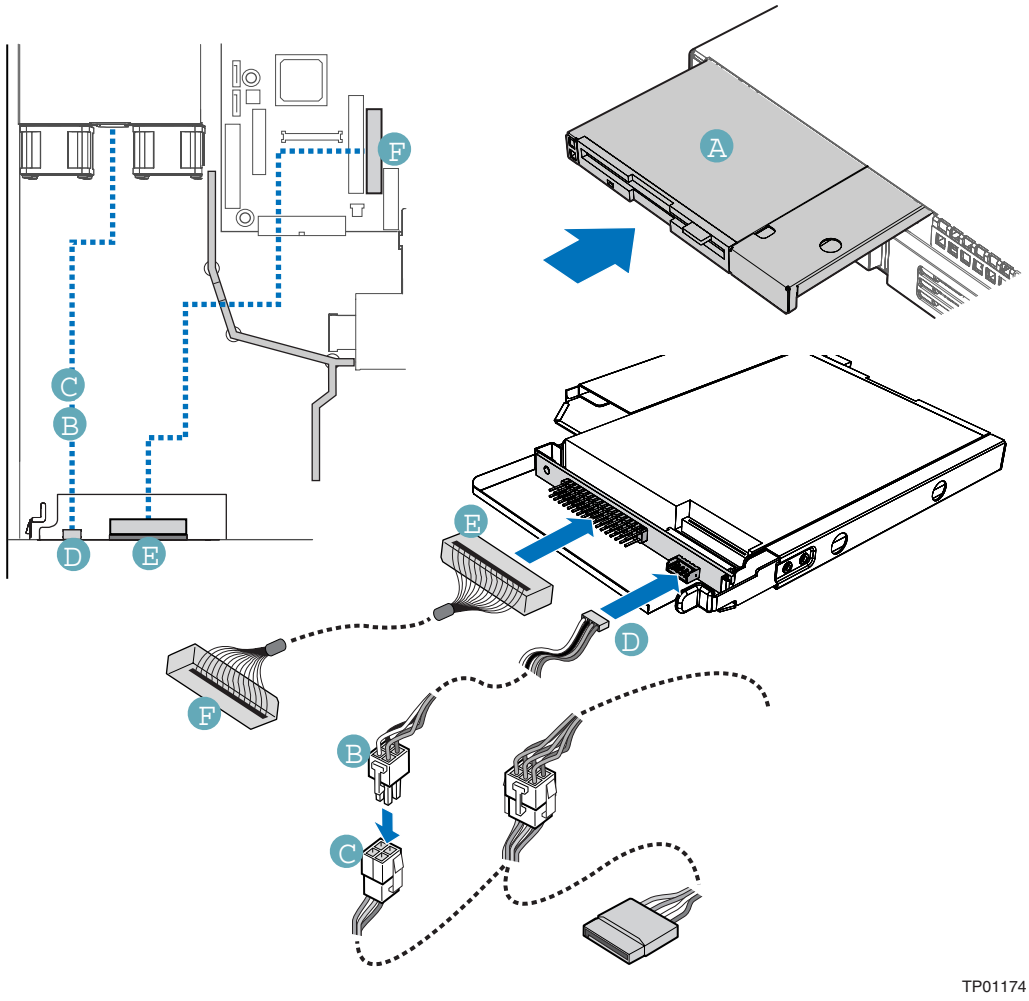

21 Install the chassis cover. For instructions, see "Installing the Chassis Cover."

22 (Optional) Install the front bezel. For instructions, see "Removing and Installing the Front Bezel."

23 Plug all peripheral devices and the AC power cable back into the server.

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Removing a Floppy Drive from the Slimline Bay (No Backplane Installed)

1 Observe the safety and ESD precautions at the beginning of this book. See "Safety Information."

2 Power down the server and unplug all peripheral devices and the AC power cable.

3 Remove the chassis cover. For instructions, see "Removing the Chassis Cover."

4 Remove the front bezel if it is installed. For instructions, see "Removing and Installing the Front Bezel."

5 Detach the power and data cables from the rear of the floppy drive.

6 Detach the data cable from the server board and remove the cable from the chassis.

7 Push in on the blue lever at the rear of the drive carrier.

8 Slide the floppy drive carrier out through the front of the chassis.

9 Remove the screw that attaches the interposer board to the drive. Lift the interposer board from the drive.

10 Remove the flat flex cable from the floppy drive and from the interposer board.

11 Press downward on the side of the carrier to release the drive from the drive carrier.

12 Store the floppy drive carrier, the interposer board, the flat flex cable, and the floppy drive data cable for future use.

13 Install the slimline filler panel into slimline bay if no drive is to be installed into the bay.

14 Install the chassis cover. For instructions, see "Installing the Chassis Cover."

15 (Optional) Install the front bezel. For instructions, see "Removing and Installing the Front Bezel."

16 Plug all peripheral devices and the AC power cable back into the server.

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Installing a Floppy Drive into the Converted Hard Drive Bay (Backplane Installed)

The slimline floppy drive conversion kit can only be installed into a system that is using either the SATA or the SCSI backplane. You will know if you have one of these backplanes installed if you can install either hot-swap SATA or hot-swap SCSI drives. The conversion kit must be installed in the left hard drive bay.

1 Observe the safety and ESD precautions at the beginning of this book. See "Safety Information."

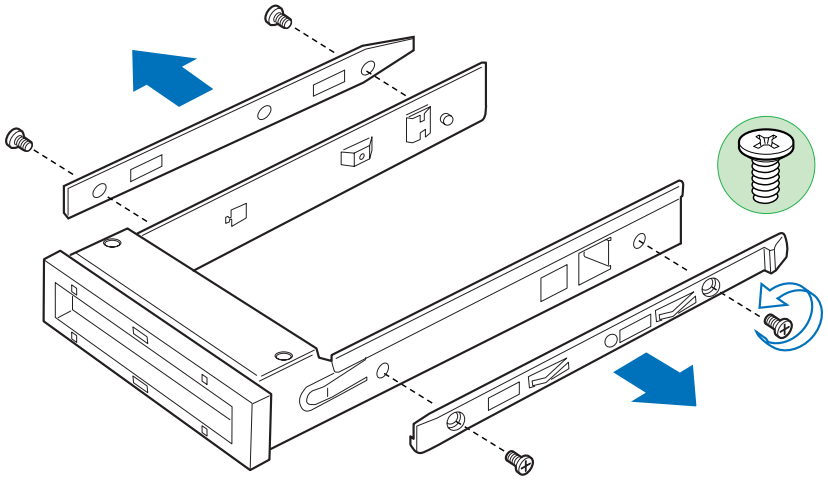
2 Power down the server and unplug all peripheral devices and the AC power cable.

3 Remove the chassis cover. For instructions, see "Removing the Chassis Cover."

4 Remove the front bezel if it is installed. For instructions, see "Removing and Installing the Front Bezel."

5 Remove the left hot-swap hard drive carrier from the chassis.

6 Remove the screws that attach the slide rails to the floppy drive conversion kit carrier.



7 Slide the floppy drive into the drive carrier, rear of the drive first, with the underside of the drive facing down.

8 Line up the holes in the side of the drive with the holes in the carrier. See letter "A" in the figure below.

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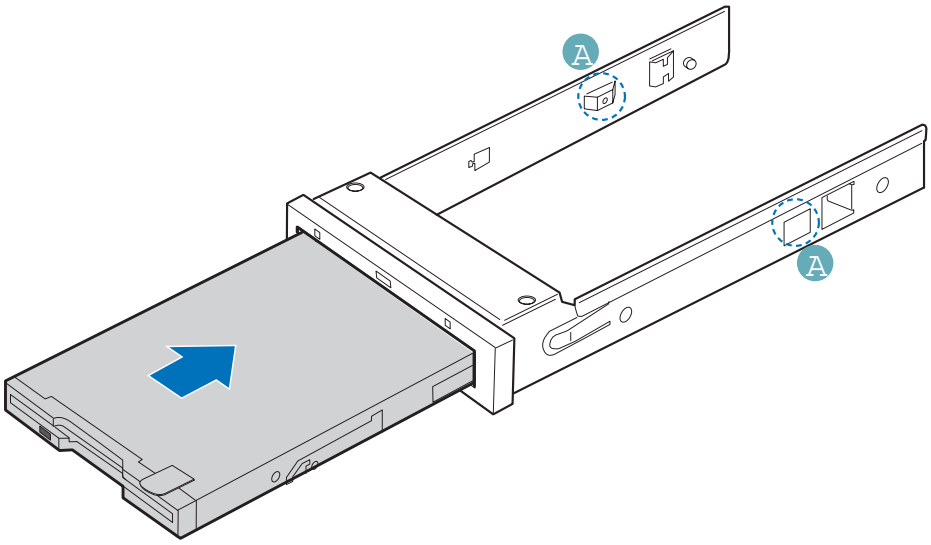

9 Attach the floppy drive to the carrier with the screws that came with your floppy drive conversion kit. One screw attaches at each side.

10 Reattach the slide rails onto the floppy drive conversion kit carrier.

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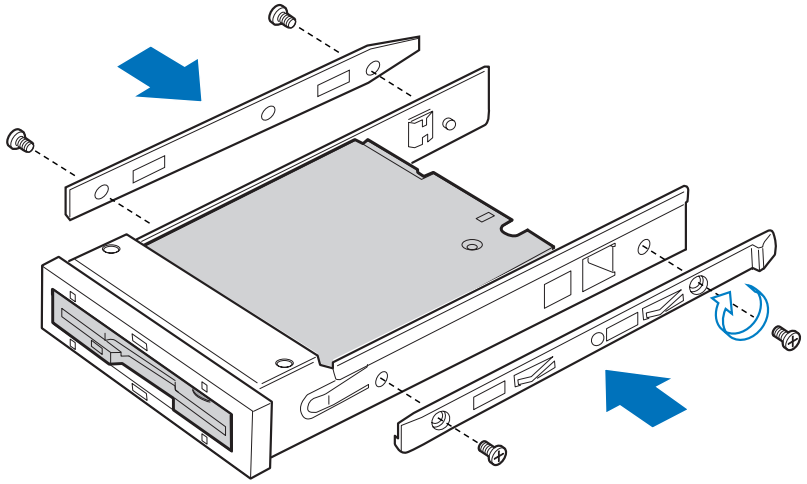

11 Open the connector on the rear of the floppy drive by pulling up on the connector cover.

12 Insert one end of the flat flex cable end into the floppy drive connector.

13 Push down on the connector cover to lock the cable into place.

14 Slide the carrier assembly into the left hard drive bay until it clicks into place. See letter “A” in the figure below.

15 Open the connector labeled “Floppy Con” on the backplane by pulling up on the connector cover. See letter “B” in the figure below.

16 Insert the loose end of the flat flex cable into the backplane connector. See letter “C” in the figure below.

17 Push in on the connector cover to lock the cable into place. See letter “D” in the figure below.

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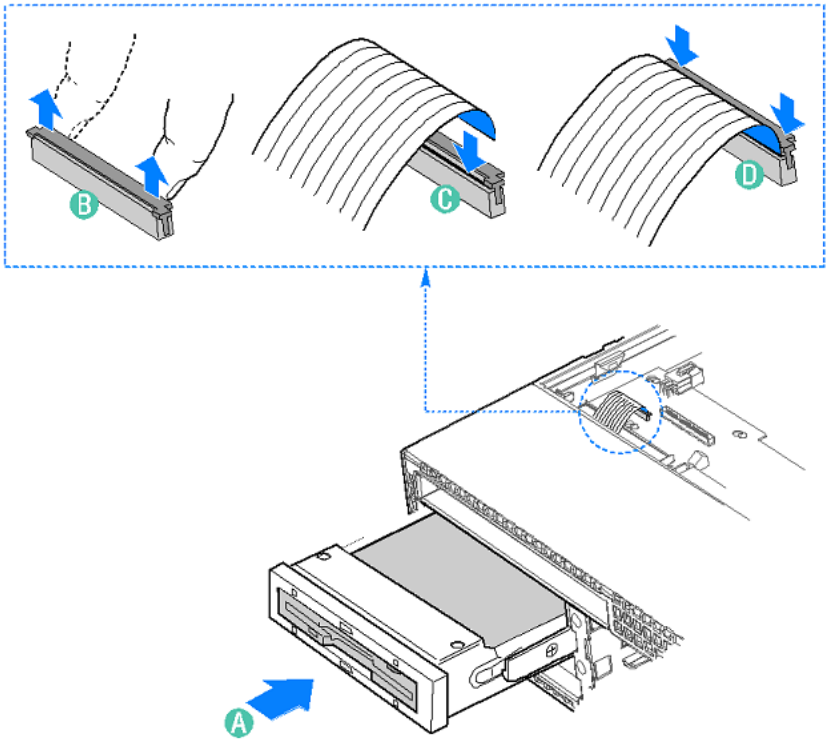

18 Install the chassis cover. For instructions, see "Installing the Chassis Cover"

19 (Optional) Install the front bezel. For instructions, see "Removing and Installing the Front Bezel."

20 Plug all peripheral devices and the AC power cable back into the server.

Removing a Floppy Drive from the Converted Hard Drive Bay

1 Observe the safety and ESD precautions at the start of this book.

2 Power down the server and unplug all peripheral devices and the AC power cable.

3 Remove the chassis cover. For instructions, see "Removing the Chassis Cover."

4 Remove the front bezel if it is installed. For instructions, see "Removing and Installing the Front Bezel."

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5 Open the connector labeled “Floppy Con” on the backplane by pulling up on the connector cover. Remove the flat flex cable from the backplane.

6 Push in on the lever at the rear of the floppy carrier and slide the drive from the front of the chassis.

7 Open the connector cover on the rear of the floppy drive by pulling up on it. Release the flat flex cable from the drive.

8 Remove the two screws at each side that hold the drive rails to the drive carrier. Lift the two rails from the carrier.

9 Disconnect the two screws attaching the drive to the converted hard drive bay carrier.

10 Install an empty hot-swap hard drive carrier into chassis drive bay if no floppy or hard drive is to be installed into the bay.

11 Store the screws, the converted drive bay carrier, the side rails, and the flat flex cable for future use.

12 Install the chassis cover. For instructions, see

13 (Optional) Install the front bezel.

14 Plug all peripheral devices and the AC power cable back into the server.

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Installing or Removing a DVD/CD-RW or CD-ROM Drive

CAUTION: DVD/CD-RW and CD-ROM drives are NOT hot swappable. Before removing or replacing the drive, you must first take the server out of service, turn off all peripheral devices connected to the system, turn off the system by pressing the power button, and unplug the AC power cord from the system or wall outlet.

Installing a DVD/CD-RW or CD-ROM Drive into Slimline Bay (Backplane Installed)

NOTE: The carrier for the slimline DVD/CD-RW drive / CD-ROM drive was pre-installed in the slimline drive bay of your Altos R510 Server Chassis.

1 Observe the safety and ESD precautions at the beginning of this book. See "Safety Information."

2 Power down the server and unplug all peripheral devices and the AC power cable.

3 Remove the chassis cover. For instructions, see "Removing the Chassis Cover."

4 Remove the front bezel if it is installed. For instructions, see "Removing and Installing the Front Bezel."

5 Push in on the blue lever at the rear of the DVD/CD-RW or CD-ROM drive carrier and push the carrier out through the front of the chassis.

6 Align the two holes at left edge of DVD/CD-RW or CD-ROM drive with the cutouts in drive carrier. See letter "A" in the figure below.

7 Lower the right side of the DVD/CD-RW or CD-ROM drive into the carrier until it clicks into place. See letter "B" in the figure below.

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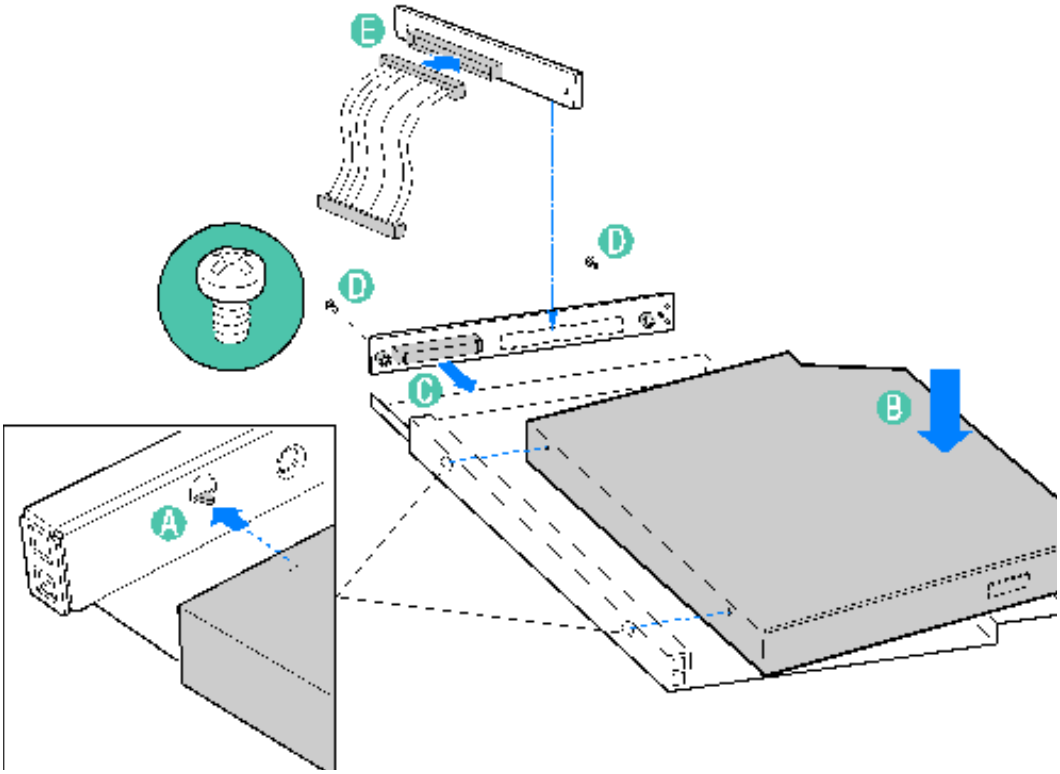
8 Use the two screws indicated in the figure to attach the interposer board to the DVD/CD-RW or CD-ROM drive. See letters “C” and “D” in the figure.

9 Attach the 44-pin CD-ROM drive cable to the exposed side / back of the interposer board. See letter “E” in the figure.



10 Slide the DVD/CD-RW or CD-ROM drive carrier into the chassis. See letter “A” in the figure below.

11 Connect the loose end of the CD-ROM drive cable to the backplane connector. See letter “B” in the figure.

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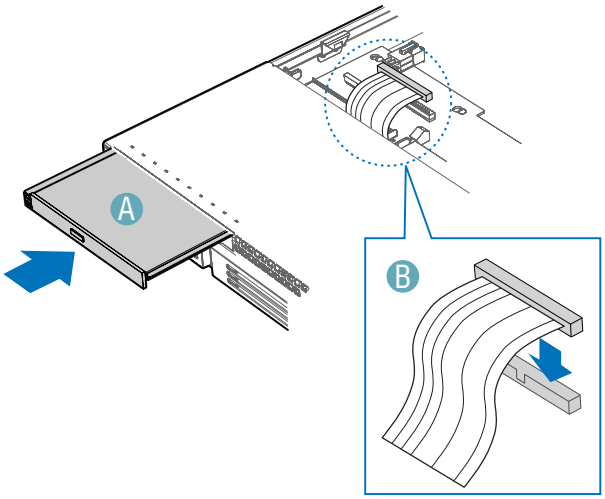

12 Install the chassis cover. For instructions, see "Installing the Chassis Cover."

13 (Optional) Install the front bezel. For instructions, see "Removing and Installing the Front Bezel."

14 Plug all peripheral devices and the AC power cable back into the server.

Removing a DVD/CD-RW or CD-ROM Drive from the Slimline Bay (Backplane Installed)

1 Observe the safety and ESD precautions at the beginning of this book. See "Safety Information."

2 Power down the server and unplug all peripheral devices and the AC power cable.

3 Remove the chassis cover. For instructions, see "Removing the Chassis Cover."

4 Remove the front bezel if it is installed.

5 Disconnect the CD-ROM data cable from the backplane.

6 Push in on the blue lever at the rear of the drive carrier. Slide the drive carrier out through the front of the chassis.

7 Press downward on the side of the carrier release the drive from the drive carrier.

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8 Disconnect the data cable from the rear of the DVD/CD-RW or CD-ROM drive.

9 Remove the two screws at the rear of the DVD/CD-RW or CD-ROM drive to disconnect the interposer board.

10 Store the screw and interposer board for future use. Suggestion: tape the screw to the drive carrier.

11 Slide the empty drive carrier into the chassis until it clicks into place.

12 Install the chassis cover. For instructions, see "Installing the Chassis Cover."

13 (Optional) Install the front bezel. For instructions, see "Removing and Installing the Front Bezel."

14 Plug all peripheral devices and the AC power cable back into the server.

Installing DVD/CD-RW or CD-ROM Drive into Slimline Bay (No Backplane Installed)

NOTE: The carrier for the slimline DVD/CD-RW drive / CD-ROM drive was pre-installed in the slimline drive bay of your Altos R510 Server Chassis. The interposer board and floppy drive power adapter cable used in these instructions was sent to you with your fixed drive kit.

1 Observe the safety and ESD precautions at the beginning of this book. See "Safety Information."

2 Power down the server and unplug all peripheral devices and the AC power cable.

3 Remove the chassis cover. For instructions, see "Removing the Chassis Cover."

4 Remove the front bezel if it is installed. For instructions, see "Removing and Installing the Front Bezel."

5 Push in on the blue lever at the rear of the DVD/CD-RW or CD-ROM drive carrier and push the carrier out through the front of the chassis.

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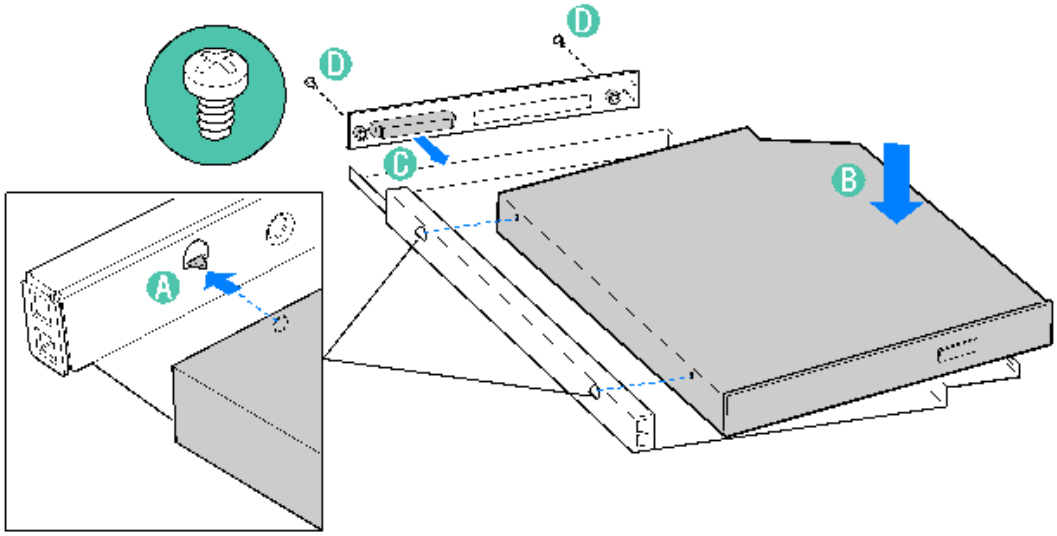
6 Align the two holes at left edge of DVD/CD-RW or CD-ROM drive with the cutouts in drive carrier. See letter “A” in the figure below.

7 Lower the right side of the DVD/CD-RW or CD-ROM drive into the carrier until it clicks into place. See letter “B” in the figure below.

8 Use the two screws indicated in the figure to attach the interpose board to the DVD/CD-RW or CD-ROM drive. See letters “C” and “D” in the figure.



9 Insert the DVD/CD-RW or CD-ROM drive carrier into the chassis. See letter “A” in the figure below.

10 If it is not already connected, connect the 2x3 end of the DVD/CD-RW or CD-ROM drive power cable that was included with your fixed drive kit to the 2x3 power connector on the SATA power adapter cable. See letters “B” and “C” in the figure below.

11 Connect the drive power cable to the power connector on the rear of the DVD/CD-RW or CD-ROM drive. See letter “D” in the figure.

12 Connect the DVD/CD-RW or CD-ROM drive data cable that was included with your kit between the interposer board and the IDE connector on the server board. See letters “E” and “F” in the figure below. See your server board documentation for assistance in locating the connector location on the server board.

13 Route the DVD/CD-RW or CD-ROM drive data cable over the top of air baffle, as shown in the diagram below.

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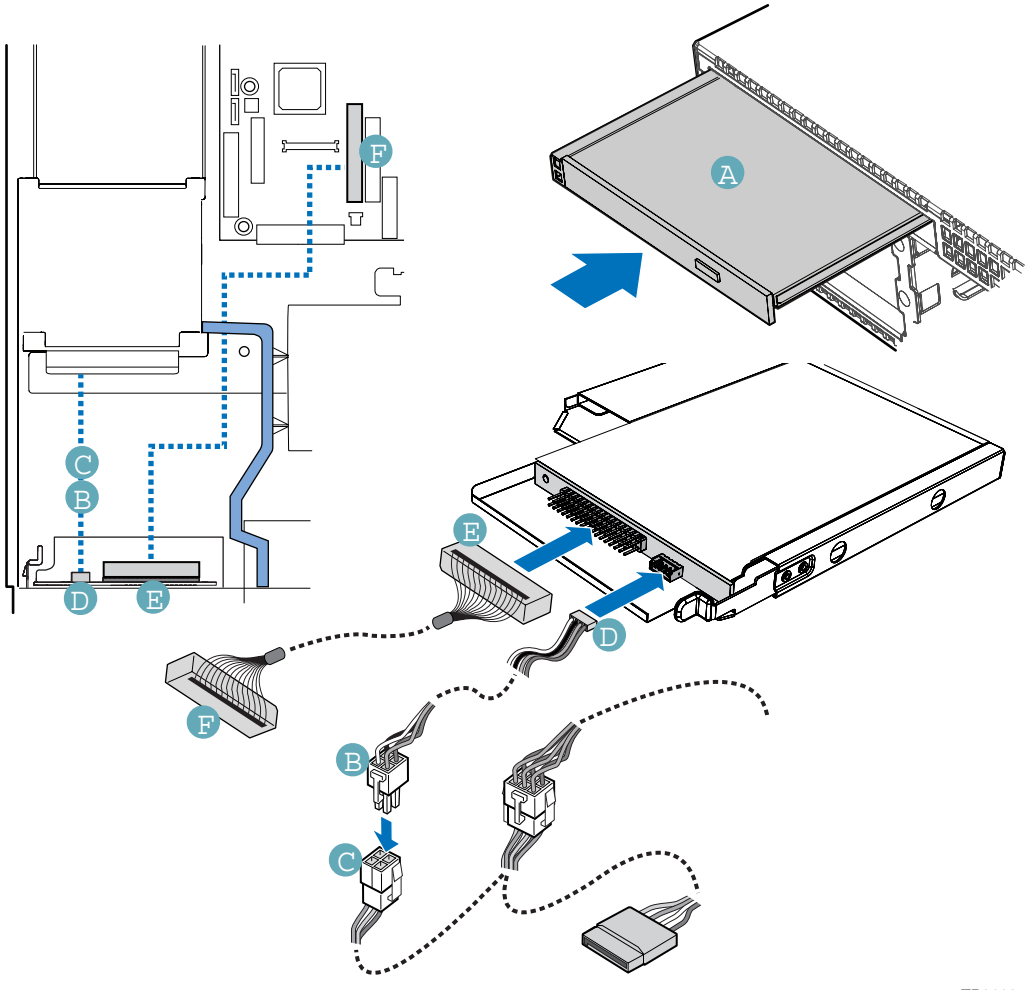
14 Install the chassis cover. For instructions, see "Installing the Chassis Cover."

15 (Optional) Install the front bezel. For instructions, see "Removing and Installing the Front Bezel."

16 Plug all peripheral devices and the AC power cable back into the server.



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Installing and Removing a PCI Riser Connector

CAUTION: PCI riser connectors are NOT hot swappable. Before removing or replacing the riser connector, you must first take the server out of service, turn off all peripheral devices connected to the system, turn off the system by pressing the power button, and unplug the AC power cord from the system or wall outlet.

Installing a PCI Riser Connector

To install the PCI riser connector, use the following instructions.

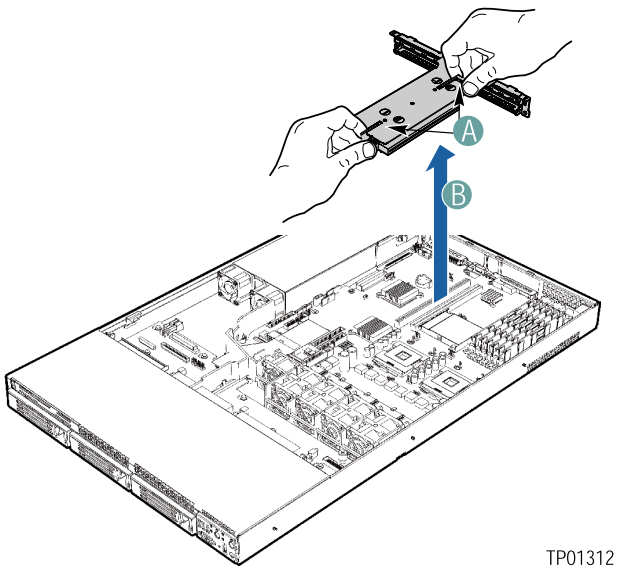
1 Observe the safety and ESD precautions at the beginning of this book. See "Safety Information."

2 Power down the server and unplug all peripheral devices and the AC power cable.

3 Remove the chassis cover. For instructions, see "Removing the Chassis Cover."

4 Pull up on the two latches on the assembly. See letter "A" in the figure below.

5 Lift the PCI riser assembly from the chassis.



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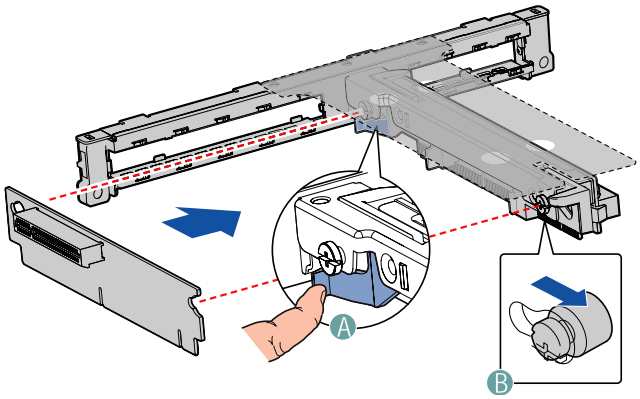
6 Line up the screws on the riser assembly with the slot and the large hole on the riser connector.

7 Press and hold the blue riser locking lever. See letter “A” in the figure below.

8 Place riser connector onto the retention pins.

9 Slide the riser connector to the right to lock it into place.

10 Release the blue locking lever.



11 Install a PCI add-in card, if desired. For instructions, see “Installing a PCI Add-in Card.”

12 Position the riser assembly over the PCI sockets on the server board (see letter “A” in the figure below), lining up the four hooks at the rear of the riser assembly (see letter “B”) with the four slots in the rear of the chassis (see letter “C”).

13 Push the riser assembly down until the assembly is securely seated.

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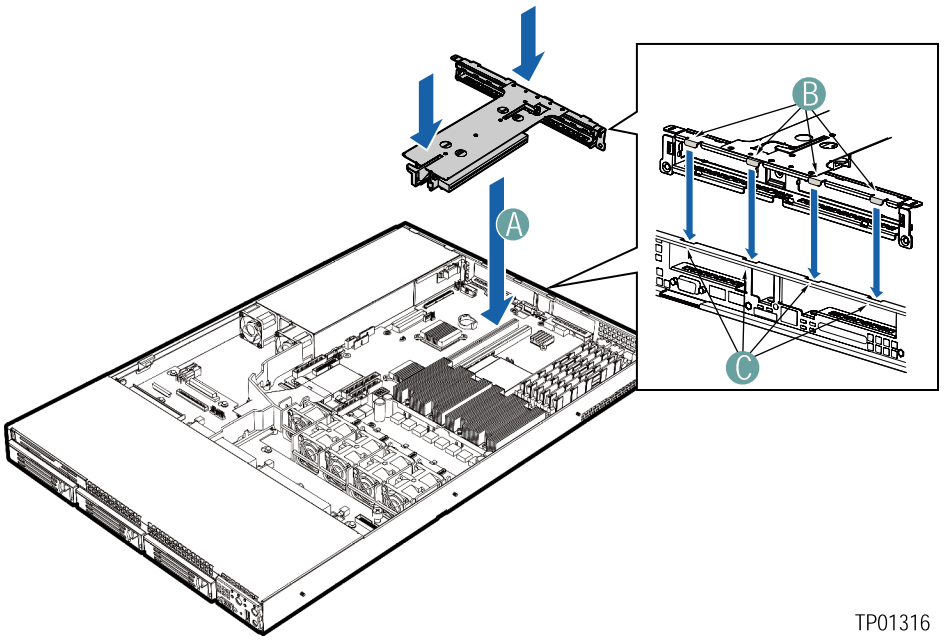

14 Install the chassis cover. For instructions, see "Installing the Chassis Cover."

15 Plug all peripheral devices and the AC power cable back into the server.

Removing a PCI Riser Connector

The PCI riser connector can be replaced if it fails or if a different option is required. To replace the PCI riser connector, use the following instructions to remove it, and then follow the instructions under "Installing a PCI Riser Connector" to install a new riser connector.

NOTE: To eliminate the possibility of installing the replacement connector on the wrong side of the PCI riser assembly, replace one connector at a time.

1 Observe the safety and ESD precautions at the beginning of this book. See "Safety Information."

2 Power down the server and unplug all peripheral devices and the AC power cable.

3 Remove the chassis cover. For instructions, see "Removing the Chassis Cover."

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4 Lift up on the two blue levers to lift the PCI riser assembly from the chassis.

5 Remove any PCI add-in cards that are installed in the connector. For instructions, see "Removing a PCI Add-in Card."

6 Push back on the blue release lever at the end of the riser connector. While holding the lever back, push firmly on the other edge of the board to disengage the board from the riser.

7 Follow the steps under "Installing a PCI Riser Connector" to install a replacement riser connector.

8 Install the chassis cover. For instructions, see "Installing the Chassis Cover."

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Installing and Removing a PCI Add-in Card

Installing a PCI Add-in Card

In the slots provided by the PCI riser connector, you can install either one or two add-in cards. Use the following instructions to install an add-in card.

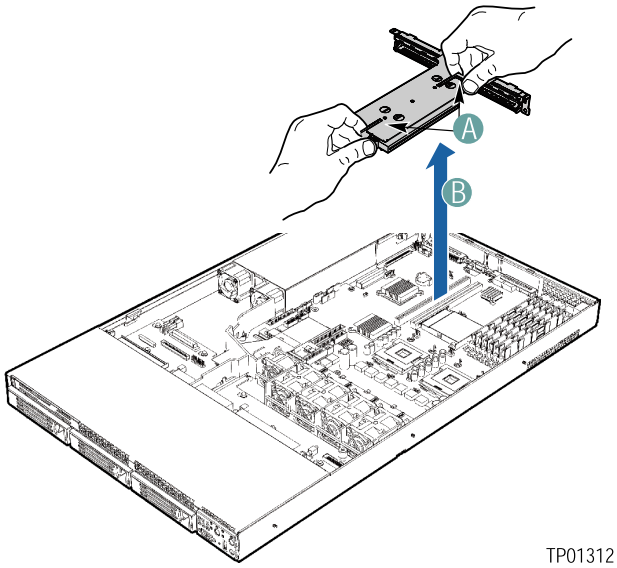
1 Observe the safety and ESD precautions at the beginning of this book. See "Safety Information."

2 Power down the server and unplug all peripheral devices and the AC power cable.

3 Remove the chassis cover. For instructions, see "Removing the Chassis Cover."

4 Pull up on the two latches on the assembly. See letter "A" in the figure below.

5 Lift the PCI riser assembly from the chassis.



6 Open the PCI retention clip on the PCI riser card assembly. See letter "A" in the figure below.

7 Remove the filler panel at the back of the riser assembly. See letter "B" in the figure below.

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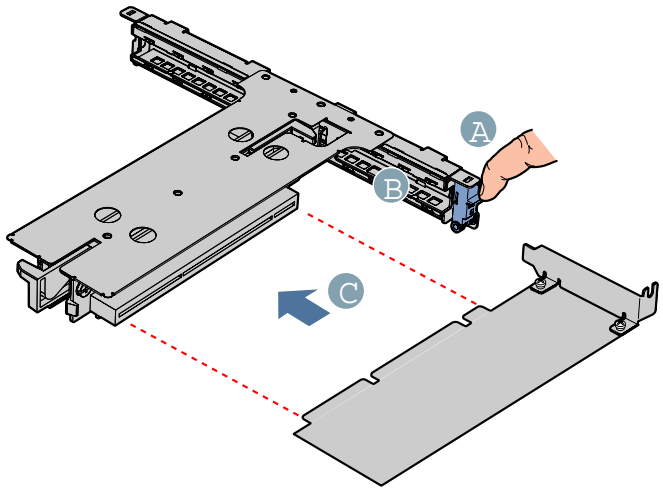
8 Insert the add-in card until it seats in riser card connector. Make sure the bracket inserts into the matching slot. See letter “C”.

9 Close the retention clip. See letter “A” in the figure.



10 Position the riser assembly over the PCI sockets on the server board (see letter “A” in the figure below), lining up the four hooks at the rear of the riser assembly (see letter “B”) with the four slots in the rear of the chassis (see letter “C”).

11 Push the riser assembly down until the assembly is securely seated (as shown in the diagram on page 74).

12 Install the chassis cover. For instructions, see “Installing the Chassis Cover.”

13 Plug all peripheral devices and the AC power cable back into the server.

Removing a PCI Add-in Card

1 Observe the safety and ESD precautions at the beginning of this book. See “Safety Information.”

2 Power down the server and unplug all peripheral devices and the AC power cable.

3 Remove the chassis cover. For instructions, see “Removing the Chassis Cover.”

4 Pull up on the two latches on the riser assembly.

5 Lift the PCI riser assembly from the chassis.

6 Open the PCI retention clip on the PCI riser card assembly.

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7 Remove the add-in card

8 Close the retention clip.

9 Position the riser assembly over the PCI sockets on the server board.

10 Push the riser assembly down until the assembly is securely seated.

11 Install the chassis cover. For instructions, see “Installing the Chassis Cover.”

12 Plug all peripheral devices and the AC power cable back into the server.

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Installing and Removing the SATA or SCSI Backplane (Optional)

You received your server chassis with your choice of one of drive installation options:

- A hot-swap SCSI option that came with a SCSI backplane board.
- A hot-swap SATA option that came with a SATA backplane board.
- A fixed SATA drive option. This option does not include a board to install.

CAUTION: The backplane is NOT hot swappable. Before removing or replacing the backplane, you must first take the server out of service, turn off all peripheral devices connected to the system, turn off the system by pressing the power button, and unplug the AC power cord from the system or wall outlet.

The backplane board and the hardware that came with the backplane can be replaced if your backplane fails or if a different option is required. To replace the backplane, use the following instructions to remove and then to install a backplane.

Removing the SATA or SCSI Backplane

1 Observe the safety and ESD precautions at the beginning of this book. See "Safety Information."

2 Power down the server and unplug all peripheral devices and the AC power cable.

3 Remove the chassis cover. For instructions, see "Removing the Chassis Cover."

4 Remove the air baffle. For instructions, see "Removing the Air Baffle."

5 Remove all hot-swap drive carriers. For instructions, see "Removing a SATA or SCSI Hot-swap Hard Disk Drive."

6 Disconnect all cables from the backplane:

7 Loosen the blue captive screw at the right side of the backplane. See letter "A" in the figure below

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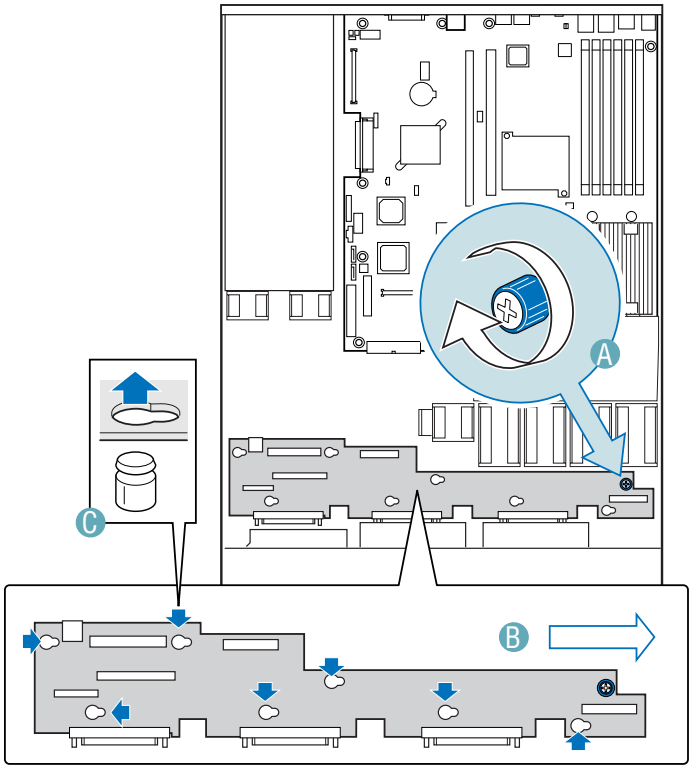
8 Slide the board to the right until it stops. Do not pull on any components on the board – grasp only on the edges of the board. See letter “B” in the figure.

9 Lift the backplane from the chassis. The holes in the backplane will slide from the matching pins in the chassis. If any of the pins catches on the holes, it means you have not slid the board fully to the right. See letter “C” in the figure.



Installing the SCSI or SATA Backplane

1 Observe the safety and ESD precautions at the beginning of this book. See “Safety Information.”

2 Power down the server and unplug all peripheral devices and the AC power cable.

3 Remove the chassis cover. For instructions, see “Removing the Chassis Cover.”

4 Remove the air baffle. For instructions, see “Removing the Air Baffle.”

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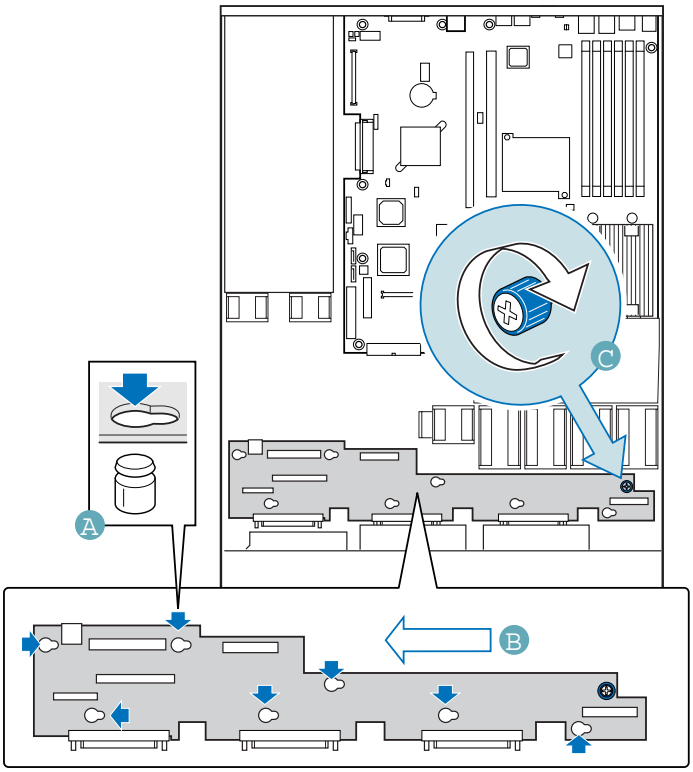
5 Remove all hot-swap drive carriers. For instructions, see "Removing a SATA or SCSI Hot-swap Hard Disk Drive."

6 Set the backplane board in place so that the holes in the board fit through the pegs in the bottom of the server chassis. See letter "A" in the figure below.

7 Slide the board to the left until it stops. Do not pull on any components on the board – grasp only on the edges of the board. See letter "B" in the figure.

8 Tighten the blue captive screw at the right side of the backplane board. See letter "C" in the figure.



9 Connect the following cables to the backplane:

- Front panel cable
- Power cable
- Flex cable. The cable indicates the end that is to be connected to the backplane.
- (SCSI backplane only): SCSI Channel A cable. The cable indicates the end that is to be connected to the backplane.
- (SATA backplane only): SATA cable(s).

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- Floppy drive cable, if applicable
- CD-ROM drive cable, if applicable

10 Install the air baffle. For instructions, see “Installing the Air Baffle.”

11 Install the chassis cover. For instructions, see “Installing the Chassis Cover.”

12 Install the hot-swap hard drive(s), if applicable. For instructions, see “Installing a SATA or SCSI Hot-swap Hard Disk Drive.”

13 (Optional) Install the front bezel. For instructions, see “Installing the Front Bezel.”

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Processor Installation and Upgrade

Installing or Replacing the Processor

CAUTION

Processor must be appropriate: You may damage the server board if you install a processor that is inappropriate for your server. Contact your local Acer dealer for a list of compatible processor(s).

ESD and handling processors: Reduce the risk of electrostatic discharge (ESD) damage to the processor by doing the following: (1) Touch the metal chassis before touching the processor or server board. Keep part of your body in contact with the metal chassis to dissipate the static charge while handling the processor. (2) Avoid moving around unnecessarily.

Installing the Processor

To install a processor, follow these instructions:

1 Observe the safety and ESD precautions at the beginning of this book.

2 Turn off all peripheral devices connected to the server. Turn off the server.

3 Disconnect the AC power cord from the server.

4 Remove the server's cover. See the documentation that accompanied your server chassis for instructions on removing the server's cover

5 Locate the processor socket and raise the socket handle completely.

6 Align the pins of the processor with the socket, and insert the processor into the socket.

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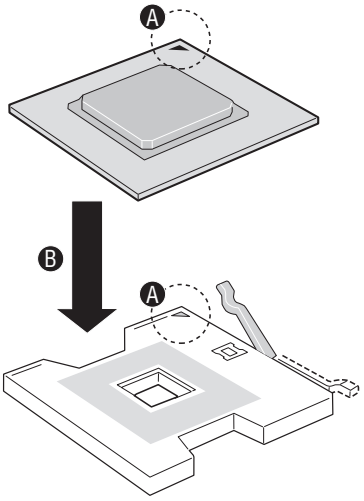

NOTE: Make sure the alignment triangle mark and the alignment triangle cutout align correctly.

7 Lower the socket lever completely.

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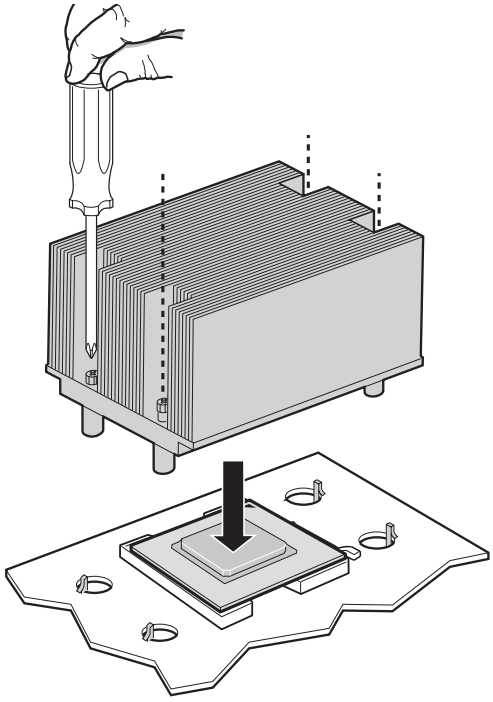
Installing the Heat Sink(s)

1 The heat sink has Thermal Interface Material (TIM) located on the bottom of it. Use caution when you unpack the heat sink so you do not damage the TIM.

2 Set the heat sink over the processor, lining up the four captive screws with the four posts surrounding the processor.

3 Loosely screw in the captive screws on the heat sink corners in a diagonal manner (screw in one screw, then the screw located diagonally to the first screw). Do not fully tighten one screw before tightening another.

4 Gradually and equally tighten each captive screw until each is firmly tightened. Do not over-tighten the screws.



5 Reinstall and reconnect any parts you removed or disconnected to reach the processor sockets.

6 Replace the server's cover and reconnect the AC power cord. See the documentation that accompanied your server chassis for instructions on installing the server's cover.

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Removing a Processor

1 Observe the safety and ESD precautions at the beginning of this book.

2 Turn off all peripheral devices connected to the server. Turn off the server.

3 Remove the AC power cord from the server.

4 Remove the server's cover. See the documentation that accompanied your server chassis for instructions on removing the server's cover.

5 Unplug the processor fan cable from the server board.

6 Loosen the four captive screws on the corners of the heat sink.

7 Twist the heat sink slightly to break the seal between the heat sink and the processor.

8 Lift the heat sink from the processor. If it does not pull up easily, twist the heat sink again. Do not force the heat sink from the processor. Doing so could damage the processor.

9 Lift the processor lever.

10 Remove the processor.

If installing a replacement processor, see "Installing the Processor." Otherwise, reinstall the chassis cover.

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Memory Installations and Upgrade

Upgrading the system memory

This section includes instructions for removing and installing a memory module.

The Altos R510 provides six DDR333 DIMM sites in two DIMM channels. DIMMs 1A, 2A and 3A are connected to memory channel A. DIMM 1B, 2B and 3B are connected to memory channel B.

The maximum memory capacity is 12GB DDR333 memory.

Memory DIMM technologies supported are: 512MB, 1 GB and 2 GB.

DIMM 1B	DIMM 1A	DIMM 2B	DIMM 2A	DIMM 3A	DIMM 3B	Memory Interleave
512MB						1-way
1GB						1-way
2GB						1-way
512MB	512MB					2-way
1GB	1GB					2-way
2GB	2GB					2-way
512MB	512MB	512MB	512MB			2-way
1GB	1GB	1GB	1GB			2-way
2GB	2GB	2GB	2GB			2-way
512MB	512MB	512MB	512MB	512MB	512MB	2-way
1GB	1GB	1GB	1GB	1GB	1GB	2-way
2GB	2GB	2GB	2GB	2GB	2GB	2-way

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The minimum memory configuration is one DIMM, installed in DIMM socket 1B (the socket farthest from the processors). However, for optimum performance and dual-channel interleave operation, a minimum of two DIMMs should be installed. DIMMs on channel A are paired with DIMMs on channel B to configure 2-way interleaving.

Both DIMM1B and DIMM1A must be populated before any DIMMs are installed. DIMM2B and DIMM2A must be populated in pairs. DIMM3B and DIMM3A must be populated in pairs.

Both DIMMs in a bank must be identical (same manufacturer, CAS latency, number of rows, columns and devices, timing parameters etc.). Although DIMMs within a bank must be identical, the BIOS supports various DIMM sizes and configurations allowing the banks of memory to be different.

Note: Dual-channel memory requires symmetrical memory modules using the same density (e.g. 512MB), bus width (e.g. x8 ,x16) and granule technology (e.g. 256M-bit, 512M-bit)

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Memory Sparing

To provide a more fault tolerant system, the Altos R510 includes specialized hardware to support fail-over to a spare DIMM device in the event that a primary DIMM in use exceeds a specified threshold of runtime errors. One of the DIMMs installed per channel will not be used, but kept in reserve. In the event of significant failures in a particular DIMM, it and its corresponding partner in the other channel (if applicable), will, over time, have its data copied over to the spare DIMM(s) held in reserve, When all the data has been copied, the reserve DIMM(s) will be put into service and the failing DIMM will be removed from service. Only one sparing cycle is supported. If this feature is not enabled, then all DIMMs will be visible in normal address space.

Please refer to the "Memory Configuration" section in "BIOS Setup" to enable the memory sparing feature.

The table below lists the suggested memory population for memory sparing.

DIMM 1B	DIMM 1A	DIMM 2B	DIMM 2A	DIMM 3A	DIMM 3B	Total Memory	
						Physical Memory	Detected by OS
512MB	512MB	512MB (spare)	512MB (spare)			2GB	1GB
1GB	1GB	1GB (spare)	1GB (spare)			4GB	2GB
2GB	2GB	2GB (spare)	2GB (spare)			8GB	4GB
512MB	512MB	512MB	512MB	512MB (spare)	512MB (spare)	3GB	2GB

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Installing and Removing Memory

The silkscreen on the board for the DIMMs displays DIMM1B, DIMM1A, DIMM2B, DIMM2A, DIMM3B, and DIMM3A, starting from the edge of the board. DIMM3A is the socket closest to the processor socket. See "Memory" for a discussion of the memory requirements and options. See "Additional Information and Software" for a link to the list of tested DIMMs.

Installing DIMMs

To install DIMMs, follow these steps:

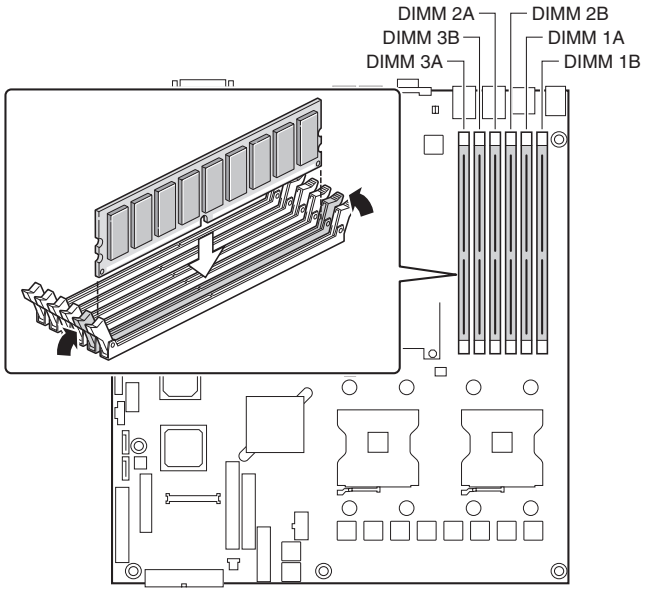
1 Observe the safety and ESD precautions at the beginning of this book.

2 Turn off all peripheral devices connected to the server. Turn off the server.

3 Disconnect the AC power cord from the server.

4 Remove the server's cover. See the documentation that accompanied your server chassis for instructions on removing the server's cover.

5 Locate the DIMM sockets (see figure below).



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6 Make sure the clips at either end of the DIMM socket(s) are pushed outward to the open position.

7 Holding the DIMM by the edges, remove it from its anti-static package.

8 Position the DIMM above the socket. Align the two small notches in the bottom edge of the DIMM with the keys in the socket (see inset in the figure above).

9 Insert the bottom edge of the DIMM into the socket.

10 When the DIMM is inserted, push down on the top edge of the DIMM until the retaining clips snap into place. Make sure the clips are firmly in place.

11 Replace the server's cover and reconnect the AC power cord. See the documentation that accompanied your server chassis for instructions on installing the server's cover.

Removing DIMMs

To remove a DIMM, follow these steps:

1 Observe the safety and ESD precautions at the beginning of this book.

2 Turn off all peripheral devices connected to the server. Turn off the server.

3 Remove the AC power cord from the server.

4 Remove the server's cover. See the documentation that accompanied your server chassis for instructions on removing the server's cover.

5 Gently spread the retaining clips at each end of the socket. The DIMM lifts from the socket.

6 Holding the DIMM by the edges, lift it from the socket, and store it in an anti-static package.

7 Reinstall and reconnect any parts you removed or disconnected to reach the DIMM sockets.

8 Replace the server's cover and reconnect the AC power cord. See the documentation that accompanied your server chassis for instructions on installing the server's cover.

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5 BIOS setup

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This chapter explains the system BIOS and discusses how to configure the system by changing the BIOS settings.

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Using the BIOS Setup Utility

This section describes the BIOS Setup Utility options, which is used to change server configuration defaults. You can run BIOS Setup with or without an operating system being present.

Entering BIOS

You can enter and start BIOS Setup under several conditions:

- When you turn on the server, after POST completes the memory test
- When you have moved the CMOS jumper on the server board to the "Clear CMOS" position (enabled)

In the two conditions listed above, after rebooting, you will see this prompt:

Press <F2> to enter SETUP

In a third condition, when CMOS/NVRAM has been corrupted, you will see other prompts but not the <F2> prompt:

Warning: CMOS checksum invalid

Warning: CMOS time and date not set

In this condition, the BIOS will load default values for CMOS and attempt to boot.

If You Cannot Access Setup

If you are not able to access BIOS Setup, you might need to clear the CMOS memory. For instructions on clearing the CMOS, see "Clearing the CMOS".

Setup Menus

Each BIOS Setup menu page contains a number of features. Except for those features that are provided only to display automatically configured information, each feature is associated with a value field that contains user-selectable parameters. These parameters can be changed if the user has adequate security rights. If a value cannot be changed for any reason, the feature's value field is inaccessible.

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BIOS Setup Utility

The BIOS Setup utility is provided to perform system configuration changes and to display current settings and environment information.

The BIOS Setup utility stores configuration settings in system non-volatile storage. Changes affected by BIOS Setup will not take effect until the system is rebooted. The BIOS Setup Utility can be accessed during POST by using the F2 key.

Console Redirection

The BIOS Setup utility is functional via console redirection over various terminal standards emulation. This may limit some functionality for compatibility, e.g., usage of colors or some keys or key sequences or support of pointing devices.

Configuration Reset

Setting the Clear CMOS jumper (board location J1H4) produces a “reset system configuration” request. When a request is detected, the BIOS loads the default system configuration values during the next POST.

Alternatively, the user can clear CMOS without opening the chassis. Using the control panel, the user can hold the reset button for 4 seconds and then press the power button while still pressing the reset button.

Keyboard Commands

While in the BIOS Setup utility, the Keyboard Command Bar supports the keys specified in the following table.

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BIOS Setup Keyboard Command Bar Options

Press	Description
<F1>	Help - Pressing F1 on any menu invokes the general Help window.
← →	The left and right arrow keys are used to move between the major menu pages. The keys have no affect if a submenu or pick list is displayed.
↑	Select Item up - The up arrow is used to select the previous value in a menu item's option list, or a value field pick list. Pressing the Enter key activates the selected item.
↓	Select Item down - The down arrow is used to select the next value in a menu item's option list, or a value field pick list. Pressing the Enter key activates the selected item.
F5/-	Change Value - The minus key or the F5 function key is used to change the value of the current item to the previous value. This key scrolls through the values in the associated pick list without displaying the full list.
F6/+	Change Value - The plus key or the F6 function key is used to change the value of the current menu item to the next value. This key scrolls through the values in the associated pick list without displaying the full list. On 106-key Japanese keyboards, the plus key has a different scan code than the plus key on the other keyboard, but it has the same effect.
<Enter>	Execute Command - The Enter key is used to activate submenus when the selected feature is a submenu, or to display a pick list if a selected feature has a value field, or to select a sub-field for multi-valued features like time and date. If a pick list is displayed, the Enter key will undo the pick list, and allow another selection in the parent menu.

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Press	Description
<Esc>	Exit - The ESC key provides a mechanism for backing out of any field. This key will undo the pressing of the Enter key. When the ESC key is pressed while editing any field or selecting features of a menu, the parent menu is re-entered. When the ESC key is pressed in any submenu, the parent menu is re-entered. When the ESC key is pressed in any major menu, the exit confirmation window is displayed and the user is prompted whether changes should be discarded.
<F9>	Load Defaults - Pressing F9 causes the following to appear: Setup Confirmation Load default configuration now? [Yes] [No] If "Yes" is selected and the Enter key is pressed, all Setup fields are set to their default values. If "No" is selected and the Enter key is pressed, or if the ESC key is pressed, the user is returned to where they were before F9 was pressed without affecting any existing field values.
<F10>	Save and Exit - Pressing F10 causes the following message to appear: Setup Confirmation Save Configuration changes and exit now? [Yes] [NO] If "Yes" is selected and the Enter key is pressed, all changes are saved and Setup is exited. If "No" is selected and the Enter key is pressed, or the ESC key is pressed, the user is returned to where they were before F10 was pressed without affecting any existing values.

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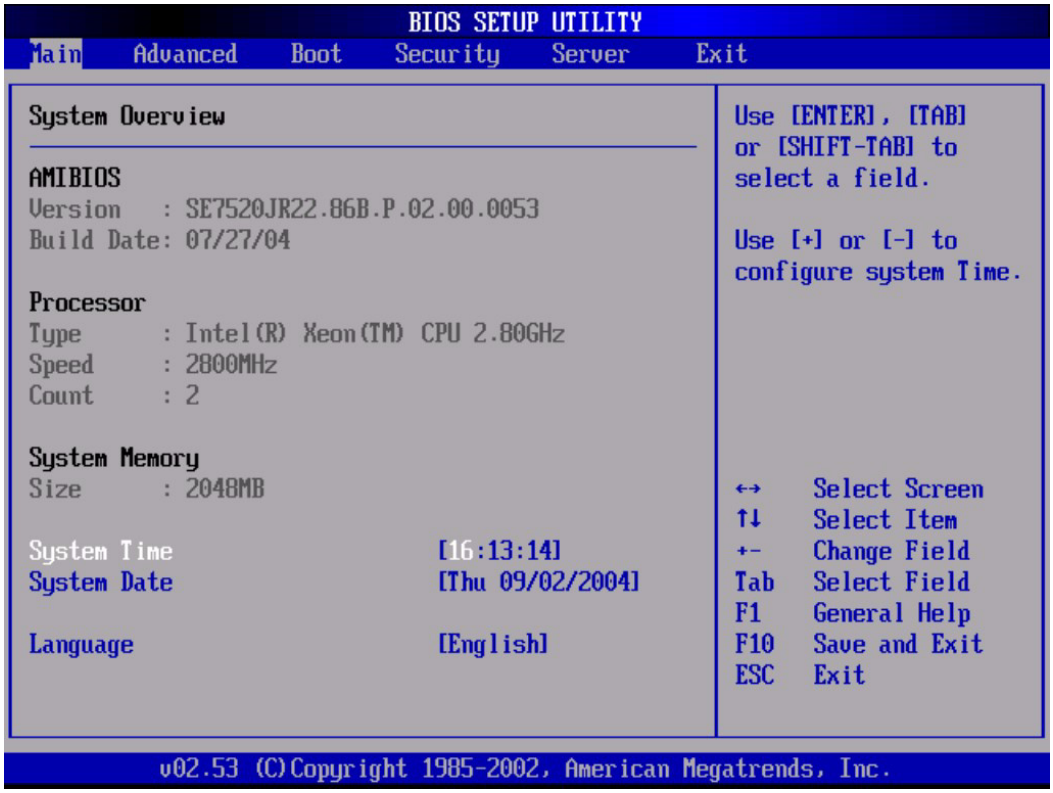
Main

The first screen displayed when entering the BIOS Setup Utility is the Main Menu selection screen. This screen displays the major menu selections available. The following tables describe the available options on the top and lower level menus. Default values are shown in bold text.



Feature	Options	Help Text	Description
System Overview			
AMI BIOS			
Version	N/A	N/A	BIOS ID string (excluding the build time and date)
Build Date	N/A	N/A	BIOS build date
Processor			

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Feature	Options	Help Text	Description
Type	N/A	N/A	Processor brand ID string
Speed	N/A	N/A	Calculated processor speed
Count	N/A	N/A	Detected number of physical processors
System Memory			
Size	N/A	N/A	Amount of physical memory detected
Server Board MCH Stepping			
Stepping	N/A	N/A	
System Time	HH:MM:SS	Use [ENTER], [TAB] or [SHIFT-TAB] to select a field. Use [+] or [-] to configure system Time.	Configures the system time on a 24 hour clock. Default is 00:00:00
System Date	DAY MM/DD/YYYY	Use [ENTER], [TAB] or [SHIFT-TAB] to select a field. Use [+] or [-] to configure system Date.	Configures the system date. Default is [Build Date]. Day of the week is automatically calculated.

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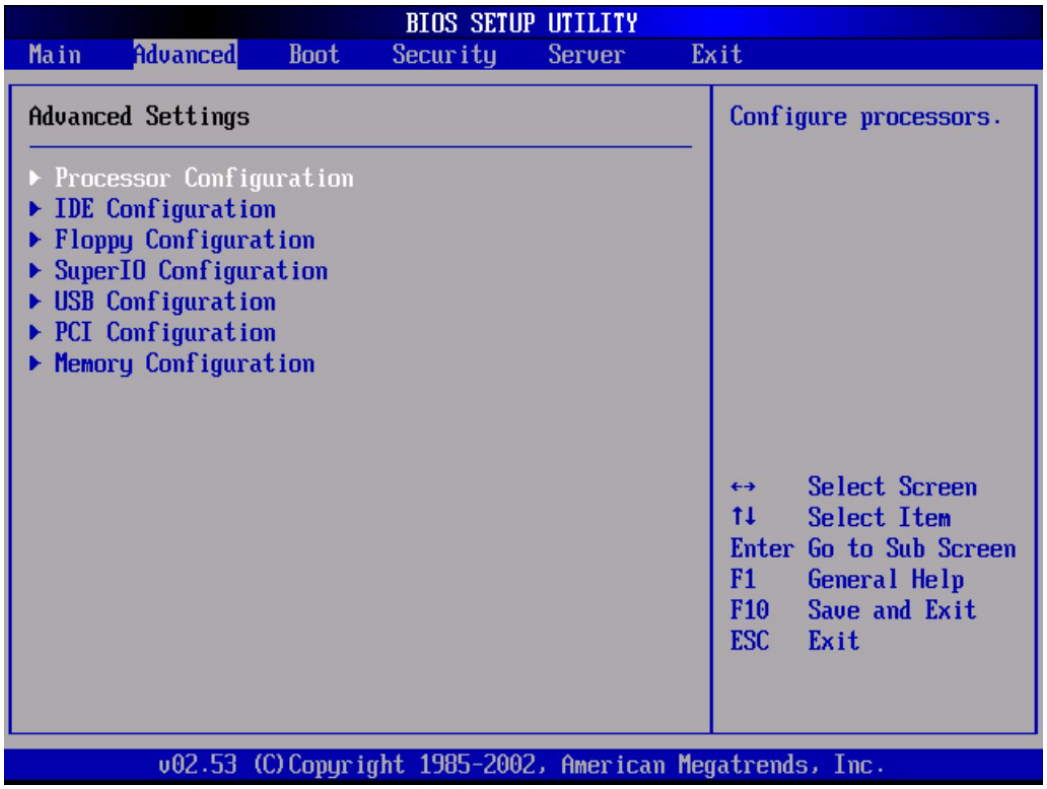
Advanced

The Advanced menu contains parameter values that define how the system behaves on startup.

Be cautious in setting parameter values in the Advanced menu as any incorrect value may cause the system to malfunction.

BIOS Setup, Advanced Menu Options



Feature	Options	Help Text	Description
Advanced Settings			
WARNING: Setting wrong values in below sections may cause system to malfunction.			
Processor Configuration	N/A	Configure processors.	Selects submenu.

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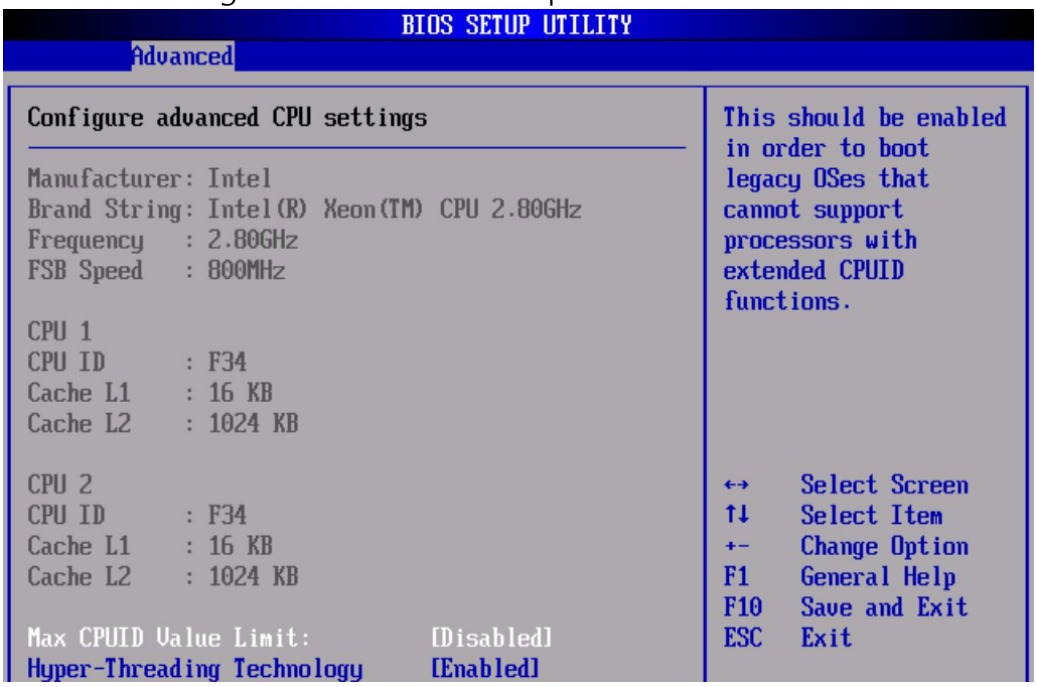
Feature	Options	Help Text	Description
IDE Configuration	N/A	Configure the IDE device(s).	Selects submenu.
Floppy Configuration	N/A	Configure the Floppy drive(s).	Selects submenu.
Super I/O Configuration	N/A	Configure the Super I/O Chipset.	Selects submenu.
USB Configuration	N/A	Configure the USB support.	Selects submenu.
PCI Configuration	N/A	Configure PCI devices.	Selects submenu.
Memory Configuration	N/A	Configure memory devices.	Selects submenu.

Processor Configuration Sub-menu Options


BIOS SETUP UTILITY
Advanced
Configure advanced CPU settings
Manufacturer: Intel
Brand String: Intel(R) Xeon(TM) CPU 2.80GHz
Frequency : 2.80GHz
FSB Speed : 800MHz
CPU 1
CPU ID : F34
Cache L1 : 16 KB
Cache L2 : 1024 KB
CPU 2
CPU ID : F34
Cache L1 : 16 KB
Cache L2 : 1024 KB
Max CPUID Value Limit: [Disabled]
Hyper-Threading Technology [Enabled]
This should be enabled in order to boot legacy OSes that cannot support processors with extended CPUID functions.
↔ Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit

Feature	Options	Help Text	Description
Configure Advanced Processor Settings			

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Feature	Options	Help Text	Description
Manufac-turer	Intel	N/A	Displays processor man-ufacturer string
Brand String	N/A	N/A	Displays processor brand ID string
Frequency	N/A	N/A	Displays the calculated processor speed
FSB Speed	N/A	N/A	Displays the processor front-side bus speed.
CPU 1			
CPUID	N/A	N/A	Displays the CPUID of the processor.
Cache L1	N/A	N/A	Displays cache L1 size.
Cache L2	N/A	N/A	Displays cache L2 size.
Cache L3	N/A	N/A	Displays cache L3 size. Visible only if the pro-cessor contains an L3 cache.
CPU 2			
CPUID	N/A	N/A	Displays the CPUID of the processor.
Cache L1	N/A	N/A	Displays cache L1 size.
Cache L2	N/A	N/A	Displays cache L2 size.
Cache L3	N/A	N/A	Displays cache L3 size. Visible only if the pro-cessor contains an L3 cache.

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Feature	Options	Help Text	Description
Max CPUID Value Limit	Disabled Enabled	This should be enabled in order to boot legacy OSes that cannot support processors with extended CPUID functions.	
Hyper-Threading Technology	Disabled Enabled	Enable Hyper-Threading Technology only if OS supports it.	Controls Hyper-Threading state. Primarily used to support older Operating Systems that do not support Hyper Threading.
Intel ® Speed Step ™ Tech	Auto Disabled	Select disabled for maximum CPU speed. Select enabled to allow the OS to reduce power consumption.	Note: This option may not be present in early Beta releases.

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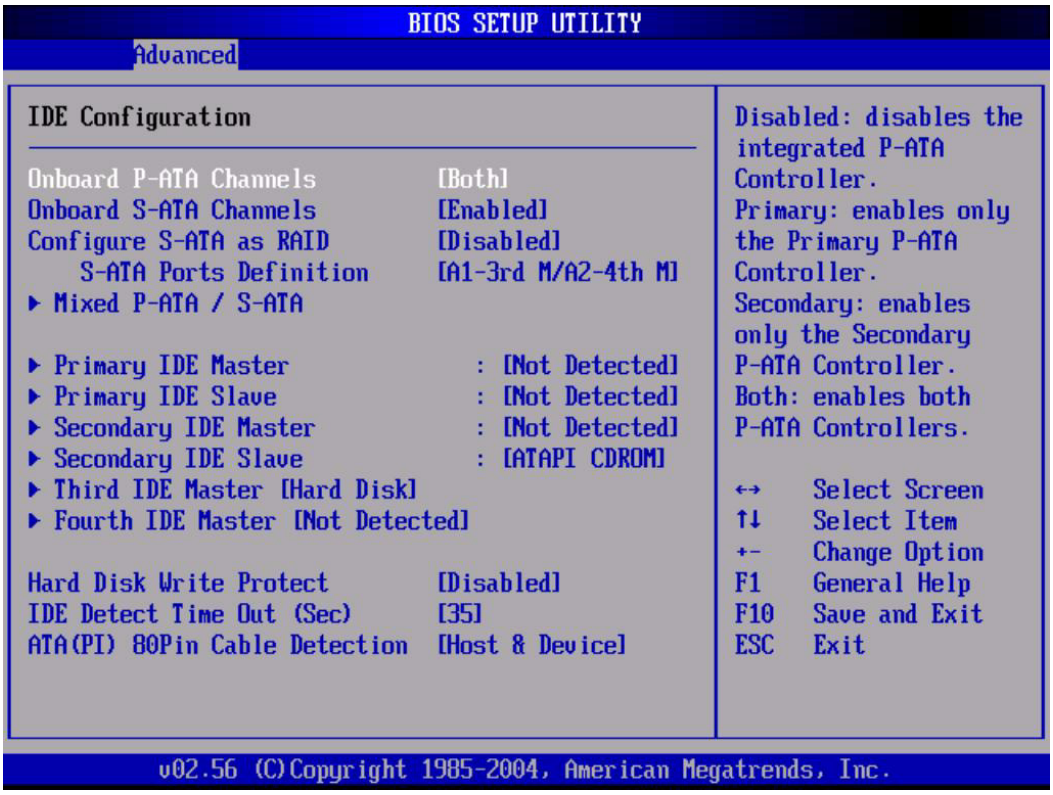
BIOS Setup IDE Configuration Menu Options


BIOS SETUP UTILITY
Advanced
IDE Configuration
Onboard P-ATA Channels [Both]
Onboard S-ATA Channels [Enabled]
Configure S-ATA as RAID [Disabled]
S-ATA Ports Definition [A1-3rd M/A2-4th M]
Mixed P-ATA / S-ATA
Primary IDE Master : [Not Detected]
Primary IDE Slave : [Not Detected]
Secondary IDE Master : [Not Detected]
Secondary IDE Slave : [ATAPI CDROM]
Third IDE Master [Hard Disk]
Fourth IDE Master [Not Detected]
Hard Disk Write Protect [Disabled]
IDE Detect Time Out (Sec) [35]
ATA(PI) 80Pin Cable Detection [Host & Device]
Disabled: disables the integrated P-ATA Controller.
Primary: enables only the Primary P-ATA Controller.
Secondary: enables only the Secondary P-ATA Controller.
Both: enables both P-ATA Controllers.
↔ Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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Feature	Options	Help Text	Description
IDE Configuration			
Onboard P-ATA Channels	Disabled Primary Secondary Both	Disabled: disables the integrated P-ATA Controller. Primary: enables only the Primary P-ATA Controller. Secondary: enables only the Secondary P-ATA Controller. Both: enables both P-ATA Controllers.	Controls state of integrated P-ATA controller.

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Feature	Options	Help Text	Description
Onboard S-ATA Channels	Disabled Enabled	Disabled: disables the integrated S-ATA Controller. Enabled: enables the integrated S-ATA Controller.	Controls state of integrated S-ATA controller.
Configure S-ATA as RAID	Disabled Enabled	When enabled the S-ATA channels are reserved to be used as RAID.	
S-ATA Ports Definition	A1-master/A2-slave A1-slave/A2-master	Defines priority between S-ATA channels.	Default set the S-ATA Port0 to IDE Master & Port1 to IDE slave. Otherwise set S-ATA Port0 to IDE slave & Port1 to IDE Master.
Mixed P-ATA / S-ATA	N/A	Lets you remove a P-ATA and replace it by S-ATA in a given channel. Only 1 channel can be S-ATA.	Selects submenu for configuring mixed P-ATA and S-ATA.
Primary IDE Master	N/A	While entering setup, BIOS auto detects the presence of IDE devices. This displays the status of auto detection of IDE devices.	Selects submenu with additional device details.
Primary IDE Slave	N/A	While entering setup, BIOS auto detects the presence of IDE devices. This displays the status of auto detection of IDE devices.	Selects submenu with additional device details.
Secondary IDE Master	N/A	While entering setup, BIOS auto detects the presence of IDE devices. This displays the status of auto detection of IDE devices.	Selects submenu with additional device details.

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Feature	Options	Help Text	Description
Secondary IDE Slave	N/A	While entering setup, BIOS auto detects the presence of IDE devices. This displays the status of auto detection of IDE devices.	Selects submenu with additional device details.
Third IDE Master	N/A	While entering setup, BIOS auto detects the presence of IDE devices. This displays the status of auto detection of IDE devices.	Selects submenu with additional device details.
Fourth IDE Master	N/A	While entering setup, BIOS auto detects the presence of IDE devices. This displays the status of auto detection of IDE devices.	Selects submenu with additional device details.
Hard Disk Write Protect	Disabled Enabled	Disable/Enable device write protection. This will be effective only if device is accessed through BIOS.	Primarily used to prevent unauthorized writes to hard drives.
IDE Detect Time Out (Sec)	0 5 10 15 20 25 30 35	Select the time out value for detecting ATA/ATAPI device(s).	Primarily used with older IDE devices with longer spin up times.
ATA(PI) 80Pin Cable Detection	Host & Device Host Device	Select the mechanism for detecting 80Pin ATA(PI) Cable.	The 80 pin cable is required for UDMA-66 and above. BIOS detects the cable by querying the host and/or device.

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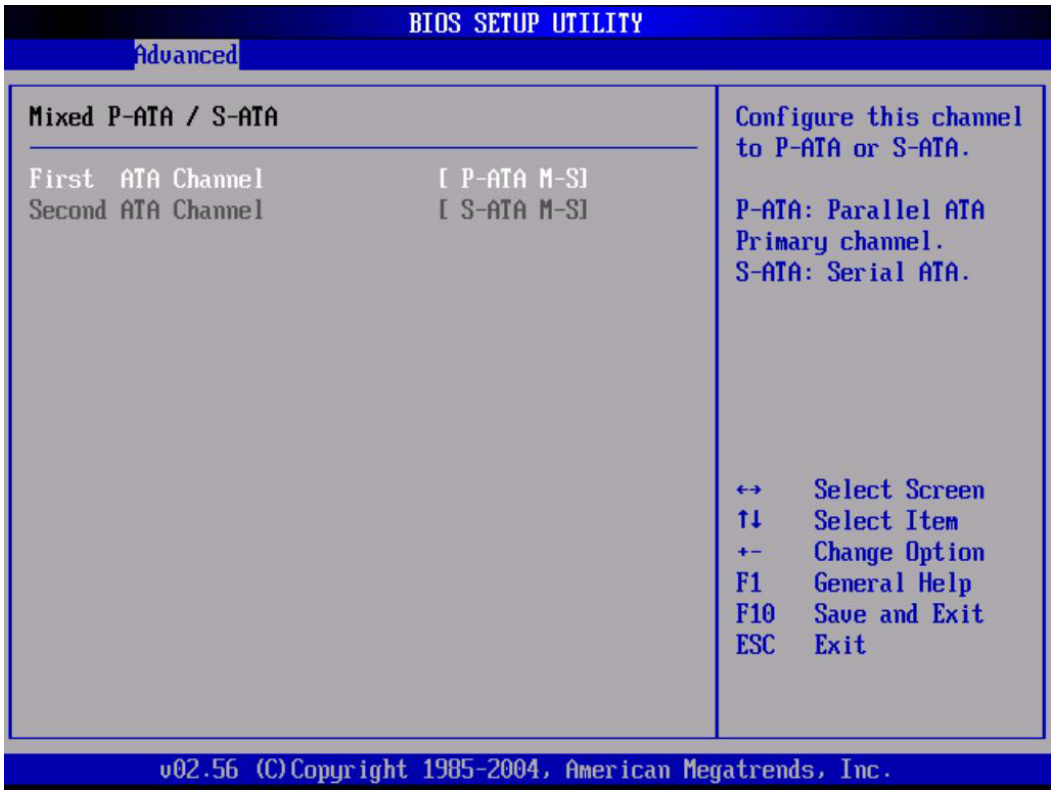
Mixed P-ATA-S-ATA Configuration with only Primary P-ATA



Feature	Options	Help Text	Description
Mixed P-ATA / S-ATA			
First ATA Channel	P-ATA M-S S-ATA M-S	Configure this channel to P-ATA or S-ATA. P-ATA: Parallel ATA Primary channel. S-ATA: Serial ATA.	Defines the S-ATA device for this channel. If the Second ATA is assigned S-ATA, this option reverts to P-ATA.
Second ATA Channel	P-ATA M-S S-ATA M-S	Configure this channel to P-ATA or S-ATA. P-ATA: Parallel ATA Primary channel. S-ATA: Serial ATA.	Defines the S-ATA device for this channel. If the First ATA is assigned S-ATA, this option reverts to P-ATA.

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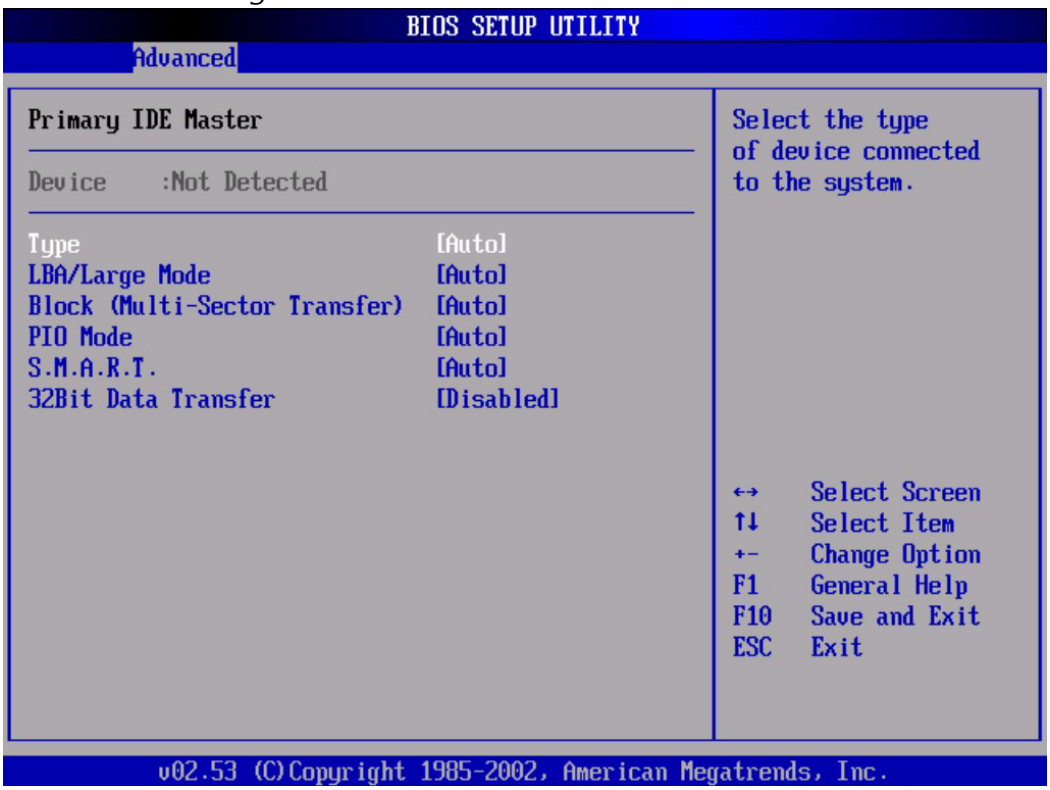
IDE Device Configuration Sub-menu Selections



Feature	Options	Help Text	Description
Primary/Secondary/Third/Fourth IDE Master/Slave			
Device	N/A	N/A	Display detected device info
Type	Not Installed Auto CDROM ARMD	Select the type of device connected to the system.	The Auto setting should work in most cases.
LBA/Large Mode	Disabled Auto	Disabled: Disables LBA Mode. Auto: Enabled LBA Mode if the device supports it and the device is not already formatted with LBA Mode disabled.	The Auto setting should work in most cases.

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Feature	Options	Help Text	Description
Block (Multi-Sector Transfer) Mode	Disabled Auto	Disabled: The Data transfer from and to the device occurs one sector at a time. Auto: The data transfer from and to the device occurs multiple sectors at a time if the device supports it.	The Auto setting should work in most cases.
PIO Mode	Auto 0 1 2 3 4	Select PIO Mode.	The Auto setting should work in most cases.
DMA Mode	Auto SWDMA0-0 SWDMA0-1 SWDMA0-2 MWDMA0-0 MWDMA0-1 MWDMA0-2 UWDMA0-0 UWDMA0-1 UWDMA0-2 UWDMA0-3 UWDMA0-4 UWDMA0-5	Select DMA Mode. Auto :Auto detected SWDMA :Single-wordDMAn MWDMA :Multi-wordDMAn UWDMA :UltraD-MAn	The Auto setting should work in most cases.
S.M.A.R.T.	Auto Disabled Enabled	Self-Monitoring, Analysis and Reporting Technol-ogy.	The Auto setting should work in most cases.
32Bit Data Transfer	Disabled Enabled	Enable/Disable 32-bit Data Transfer	

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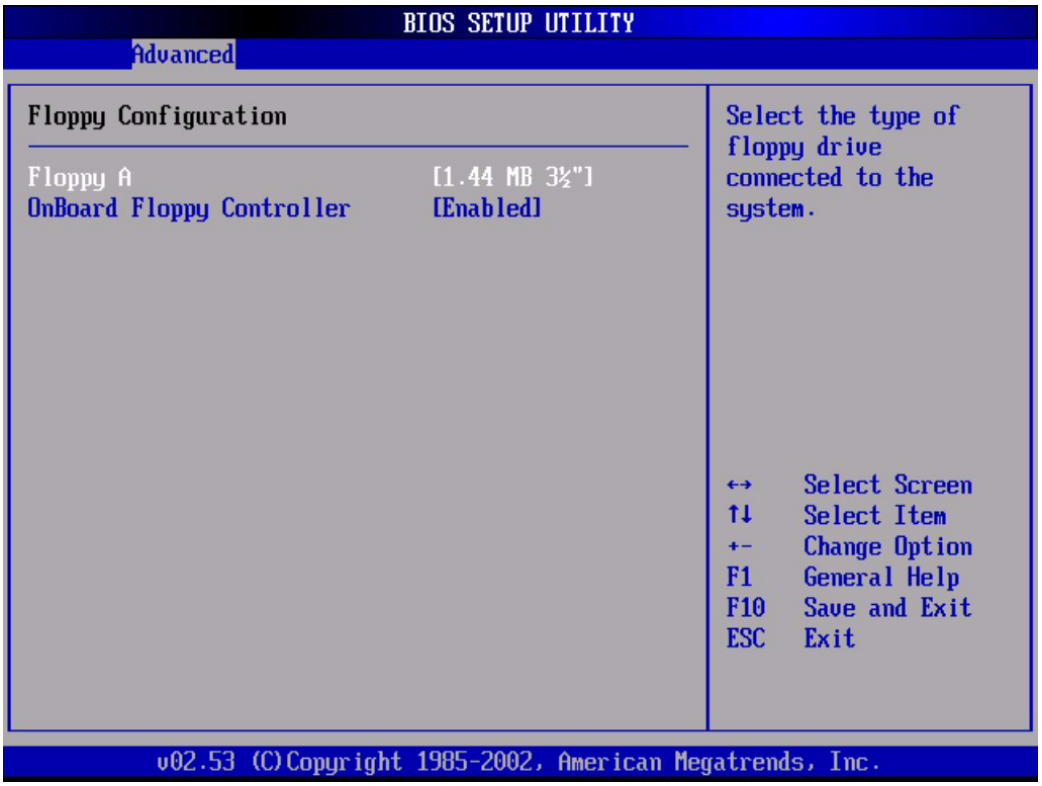
Floppy Configuration Sub-menu Selections



Feature	Options	Help Text	Description
Floppy Configuration			
Floppy A	Disabled 720 KB 3 1/2" 1.44 MB 3 1/2" 2.88 MB 3 1/2"	Select the type of floppy drive connected to the system.	Note: Intel no longer validates 720Kb & 2.88Mb drives.
Onboard Floppy Controller	Disabled Enabled	Allows BIOS to Enable or Disable Floppy Controller.	

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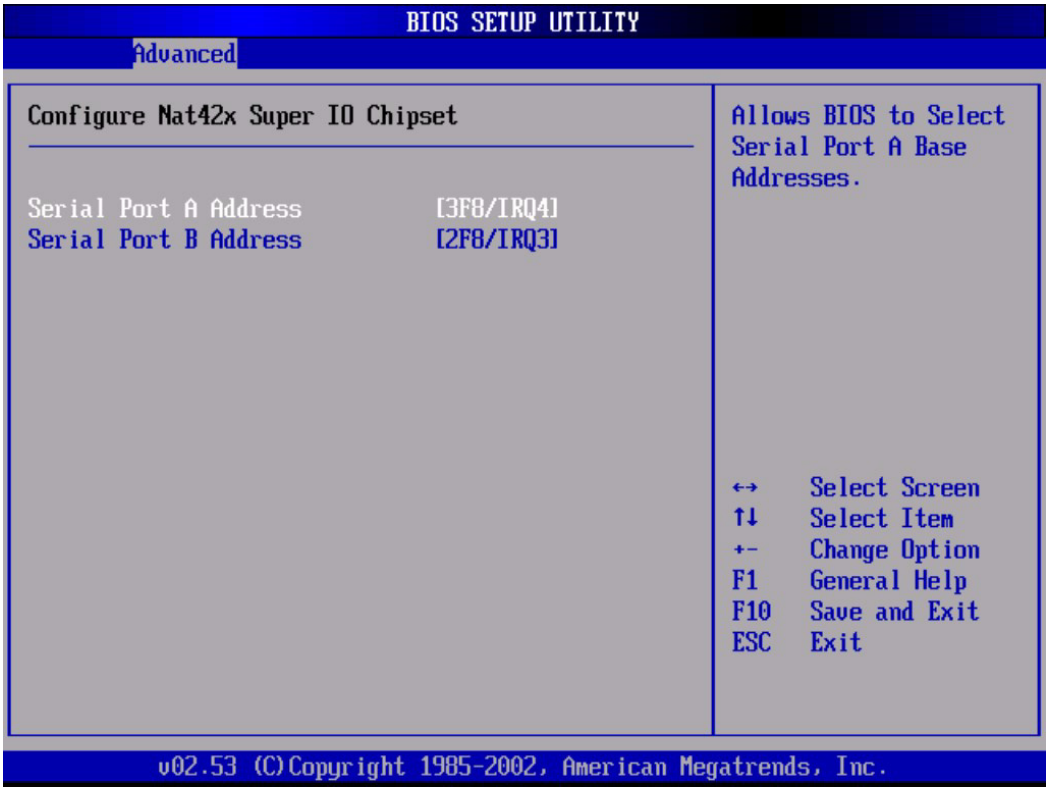
Super I/O Configuration Sub-menu


BIOS SETUP UTILITY
Advanced
Configure Nat42x Super IO Chipset
Serial Port A Address [3F8/IRQ4]
Serial Port B Address [2F8/IRQ3]
Allows BIOS to Select Serial Port A Base Addresses.
↔ Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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Feature	Options	Help Text	Description
Configure Nat42x Super IO Chipset			
Serial Port A Address	Disabled 3F8/IRQ4 2F8/IRQ3 3E8/IRQ4 2E8/IRQ3	Allows BIOS to Select Serial Port A Base Addresses.	Option that is used by other serial port is hidden to prevent conflicting settings.
Serial Port B Address	Disabled 3F8/IRQ4 2F8/IRQ3 3E8/IRQ4 2E8/IRQ3	Allows BIOS to Select Serial Port B Base Addresses.	Option that is used by other serial port is hidden to prevent conflicting settings.

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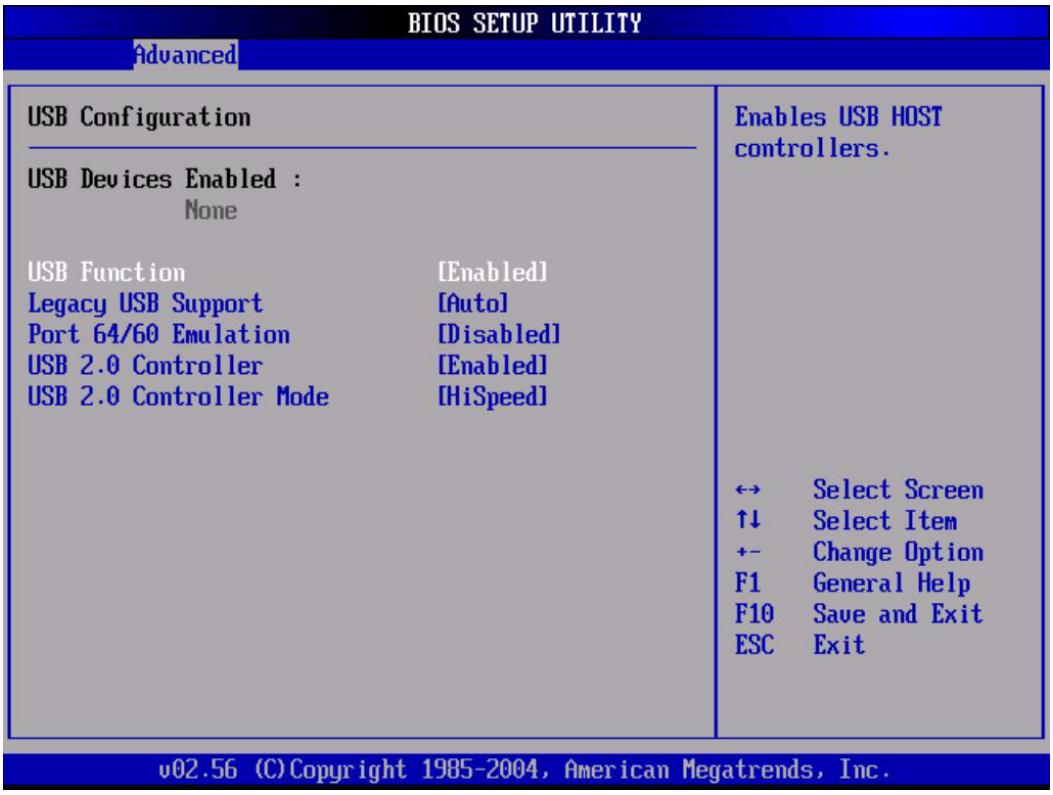
USB Configuration Sub-menu



Feature	Options	Help Text	Description
USB Configuration			
USB Devices Enabled	N/A	N/A	List of USB devices detected by BIOS.
USB Function	Disabled Enabled	Enables USB HOST controllers.	When set to disabled, other USB options are grayed out.

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Feature	Options	Help Text	Description
Legacy USB Support	Disabled Keyboard only Auto Keyboard and Mouse	Enables support for legacy USB. AUTO option disables legacy support if no USB devices are connected. If disabled, USB Legacy Support will not be disabled until booting an OS.	
Port 60/64 Emulation	Disabled Enabled	Enables I/O port 60/64h emulation support. This should be enabled for the complete USB keyboard legacy support for non-USB aware OSes.	
USB 2.0 Controller	Disabled Enabled	N/A	
USB 2.0 Controller mode	FullSpeed HiSpeed	Configures the USB 2.0 controller in HiSpeed (480Mbps) or FullSpeed (12Mbps).	

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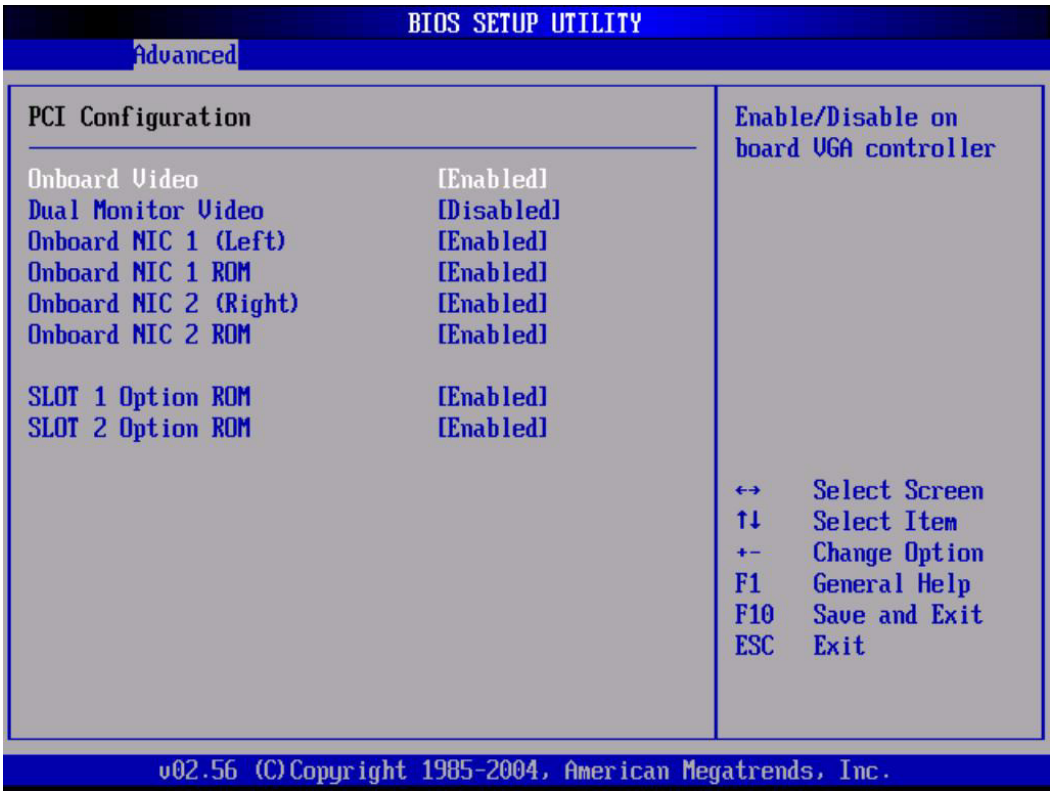
PCI Configuration



This sub-menu provides control over PCI devices and their option ROMs. If the BIOS is reporting POST error 146, use this menu to disable option ROMs that are not required to boot the system.

Parameter	Description	Option
PCI Configuration		
Onboard Video	Disabled Enabled	**Enable/Disable on board VGA Controller**
Dual Monitor Video	Disabled Enabled	**Select which graphics controller to use as the primary boot device. Enabled selects the on board device.**
Onboard NIC 1 (Left)	Disabled Enabled	
Onboard NIC 1 ROM	Disabled Enabled	

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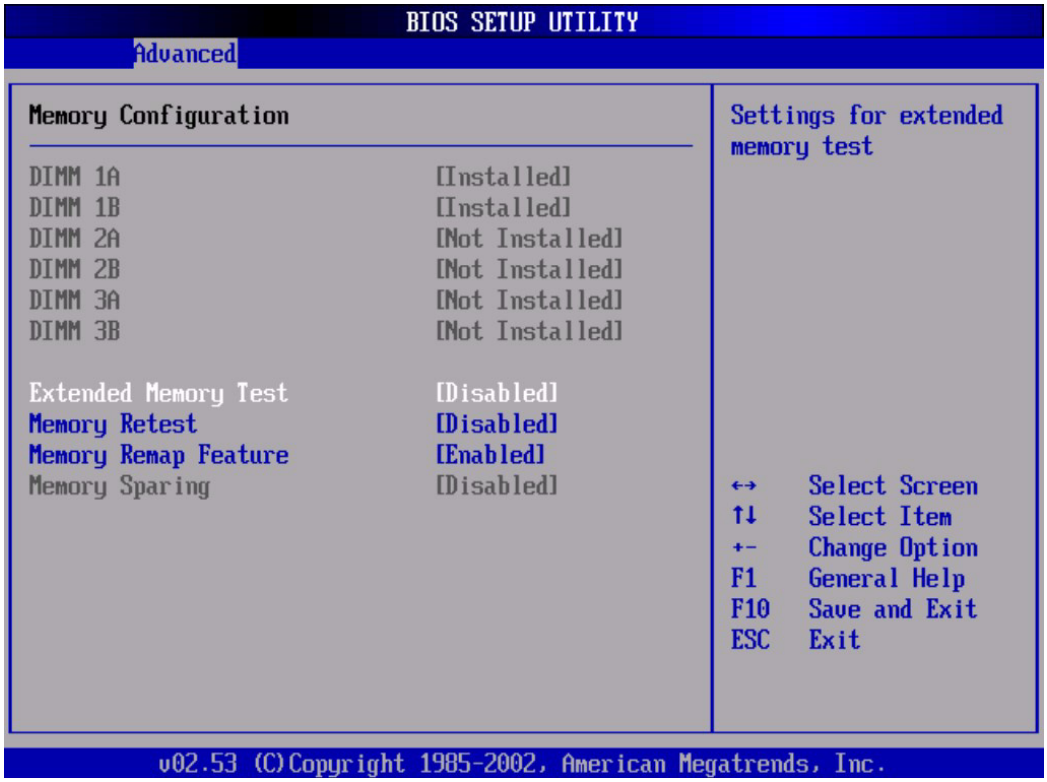
Parameter	Description	Option
Onboard NIC 2 (Right)	Disabled Enabled	
Onboard NIC 2 ROM	Disabled Enabled	
Slot 1 Option ROM	Disabled Enabled	PCI-X 64/133
Slot 2 Option ROM	Disabled Enabled	PCI-X 64/133

Memory Configuration Sub-menu Selections



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This sub-menu provides information about the DIMMs detected by the BIOS. The DIMM number is printed on the baseboard next to each device.

Feature	Options	Help Text	Description
System Memory Settings			
DIMM 1A	Installed Not Installed Disabled Mirror Spare		Informational display.
DIMM 1B	Installed Not Installed Disabled Mirror Spare		Informational display.
DIMM 2A	Installed Not Installed Disabled Mirror Spare		Informational display.
DIMM 2B	Installed Not Installed Disabled Mirror Spare		Informational display.
DIMM 3A	Installed Not Installed Disabled Mirror Spare		Informational display.

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Feature	Options	Help Text	Description
DIMM 3B	Installed Not Installed Disabled Mirror Spare		Informational display.
Extended Memory Test	1 MB 1 KB Every Location Disabled	Settings for extended memory test	
Memory Retest	Disabled Enabled	If "Enabled", BIOS will activate and retest all DIMMs on the next system boot. This option will automactically reset to "Disabled" on the next system boot.	
Memory Remap Feature	Disabled Enabled	Enable: Allow remapping of overlapped PCI memory above the total physical memory. Disable: Do not allow remapping of memory.	
Memory Sparing	Disabled Spare	Disabled provides the most memory space. Sparing reserves memory to replace failures.	Sparing is grayed out if the installed DIMM configuration does not support it.

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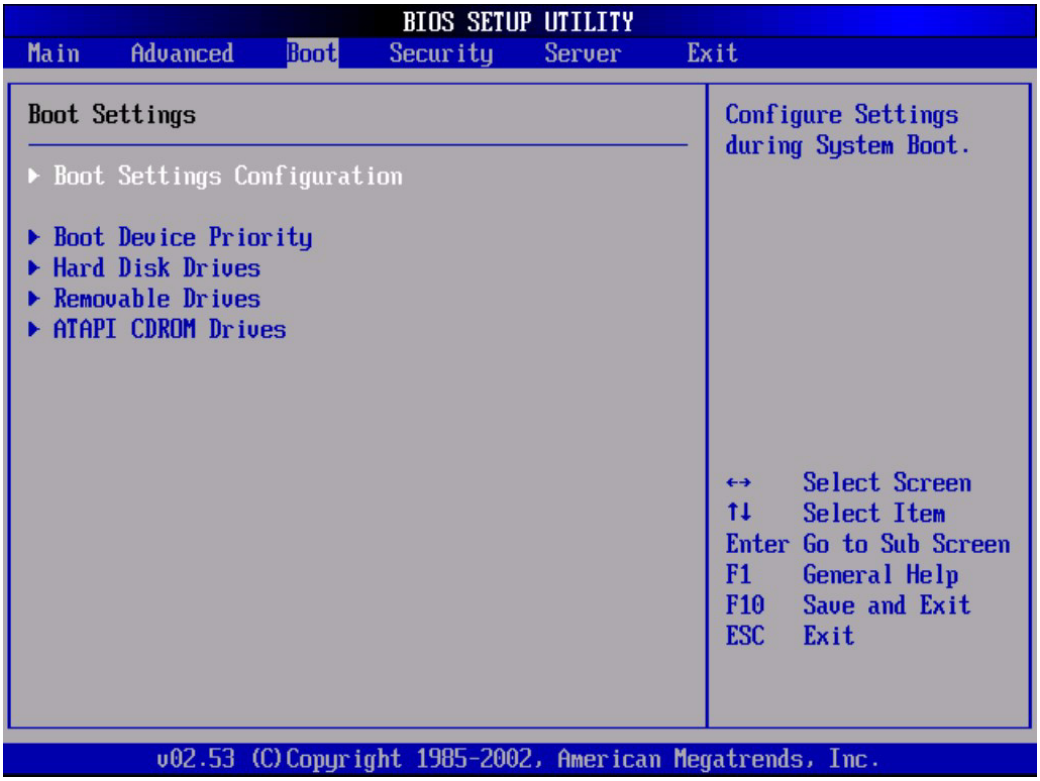
Boot Menu Selections



Feature	Option	Help Text	Description
Boot Settings			
Boot Settings Configuration	N/A	Configure settings during system boot.	Selects sub-menu.
Boot Device Priority	N/A	Specifies the boot device priority sequence.	Selects sub-menu.
Hard Disk Drives	N/A	Specifies the boot device priority sequence from available hard drives.	Selects sub-menu.
Removable Drives	N/A	Specifies the boot device priority sequence from available removable drives.	Selects sub-menu.
ATAPI CD-ROM Drives	N/A	Specifies the boot device priority sequence from available CD-ROM drives.	Selects sub-menu.

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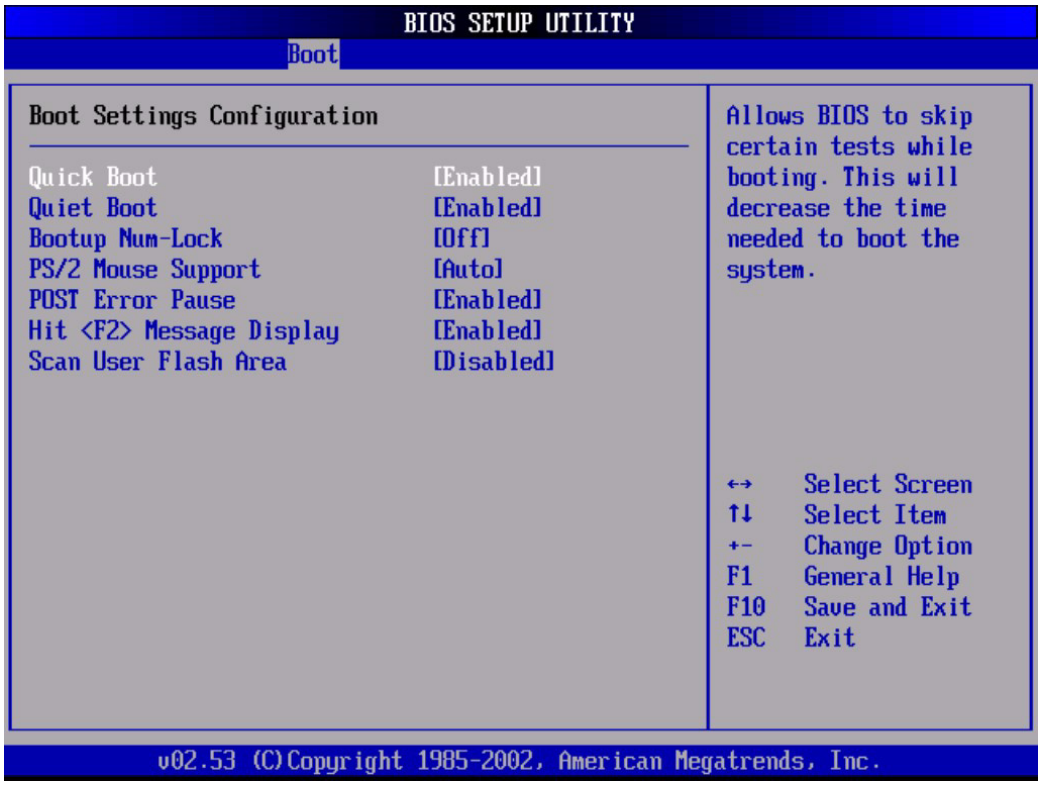
Boot Settings Configuration Sub-menu Selections


BIOS SETUP UTILITY
Boot
Boot Settings Configuration
Quick Boot [Enabled]
Quiet Boot [Enabled]
Bootup Num-Lock [Off]
PS/2 Mouse Support [Auto]
POST Error Pause [Enabled]
Hit <F2> Message Display [Enabled]
Scan User Flash Area [Disabled]
Allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system.
↔ Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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Feature	Options	Help Text
Boot Settings Configuration		
Quick Boot	Disabled Enabled	Allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system.
Quiet Boot	Disabled Enabled	Disabled: Displays normal POST messages. Enabled: Displays OEM Logo instead of POST messages.
Bootup Num-Lock	Off On	Select power-on state for Numlock.
PS/2 Mouse Support	Disabled Enabled Auto	Select support for PS/2 mouse.

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Feature	Options	Help Text
POST Error Pause	Disabled Enabled	If enabled, the system will wait for user intervention on critical POST errors. If disabled, the system will boot with no intervention, if possible.
Hit ‘F2’ Message Display	Disabled Enabled	Displays "Press ‘F2’ to run Setup" in POST.
Scan User Flash Area	Disabled Enabled	Allows BIOS to scan the Flash ROM for user binaries.

Boot Device Priority Sub-menu Selections

BIOS SETUP UTILITY
Boot
Boot Device Priority
1st Boot Device [1st FLOPPY DRIVE]
2nd Boot Device [CDROM:PM-QSI CD-RO]
3rd Boot Device [HDD:SM-WDC WD1600J]
4th Boot Device [Network:IBA GE Slo]
5th Boot Device [Network:B2 D0 Yuko]
6th Boot Device [EFI Boot Manager]
Specifies the boot sequence from the available devices.
A device enclosed in parenthesis has been disabled in the corresponding type menu.
↔ Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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Feature	Options	Help Text	Description
Boot Device Priority			

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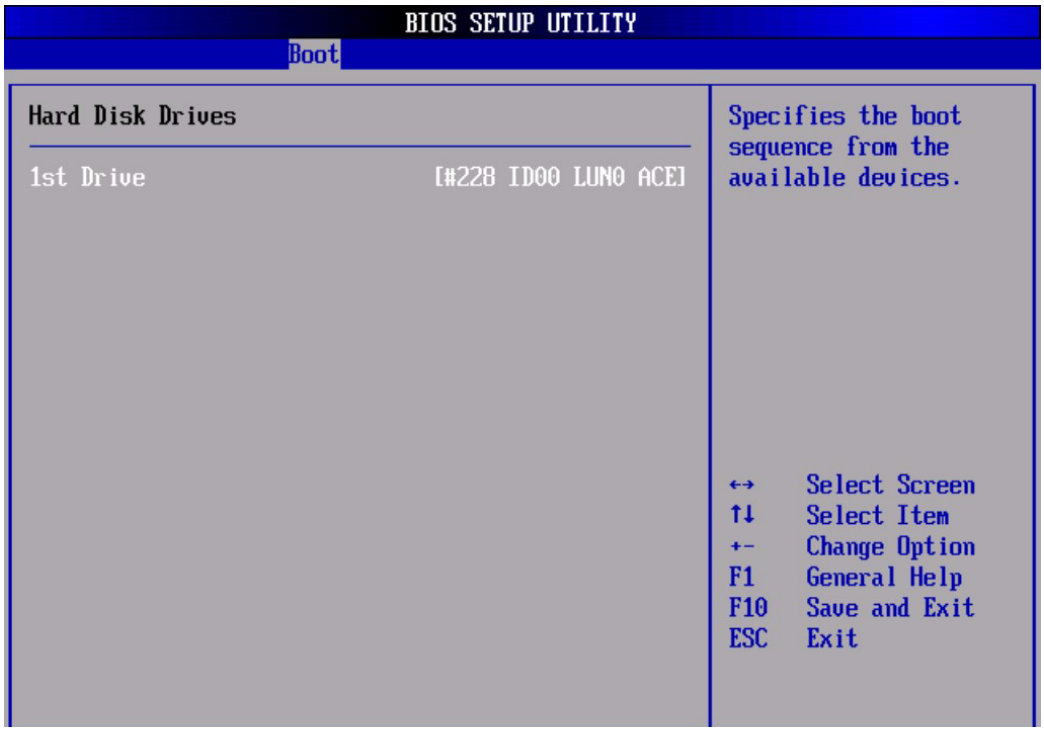
Feature	Options	Help Text	Description
1st Boot Device	Varies	Specifies the boot sequence from the available devices. A device enclosed in parenthesis has been disabled in the corresponding type menu.	Number of entries will vary based on system configuration.
nth Boot Device	Varies	Specifies the boot sequence from the available devices. A device enclosed in parenthesis has been disabled in the corresponding type menu.	

Hard Disk Drive Sub-Menu Selections



Feature	Options	Help Text	Description
Hard Disk Drives			

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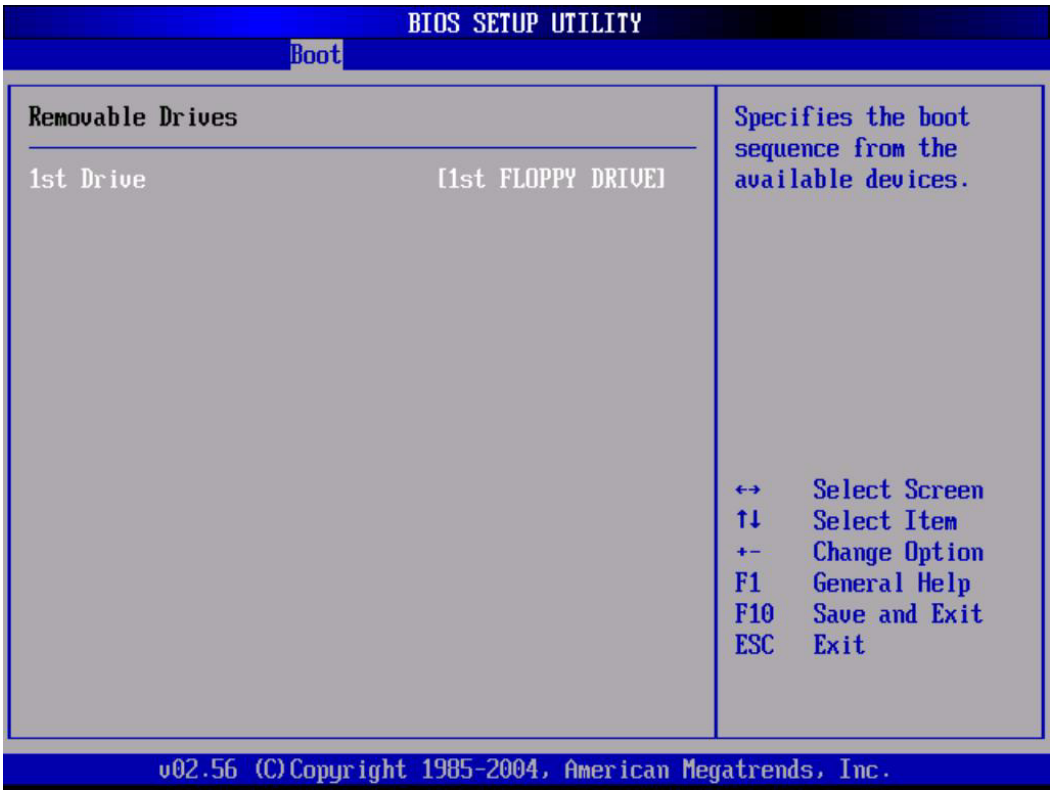
Feature	Options	Help Text	Description
1st Drive	Varies	Specifies the boot sequence from the available devices.	Varies based on system configuration.
nth Drive	Varies	Specifies the boot sequence from the available devices.	Varies based on system configuration.

Removable Drives Sub-menu Selections



Feature	Options	Help Text	Description
Removable Drives			
1st Drive	Varies	Specifies the boot sequence from the available devices.	Varies based on system configuration.

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Feature	Options	Help Text	Description
nth Drive	Varies	Specifies the boot sequence from the available devices.	Varies based on system configuration.

ATAPI CD-ROM Drives Sub-menu Selections

Feature	Options	Help Text	Description
ATAPI CD-ROM Drives			
1st Drive	Varies	Specifies the boot sequence from the available devices.	Varies based on system configuration.

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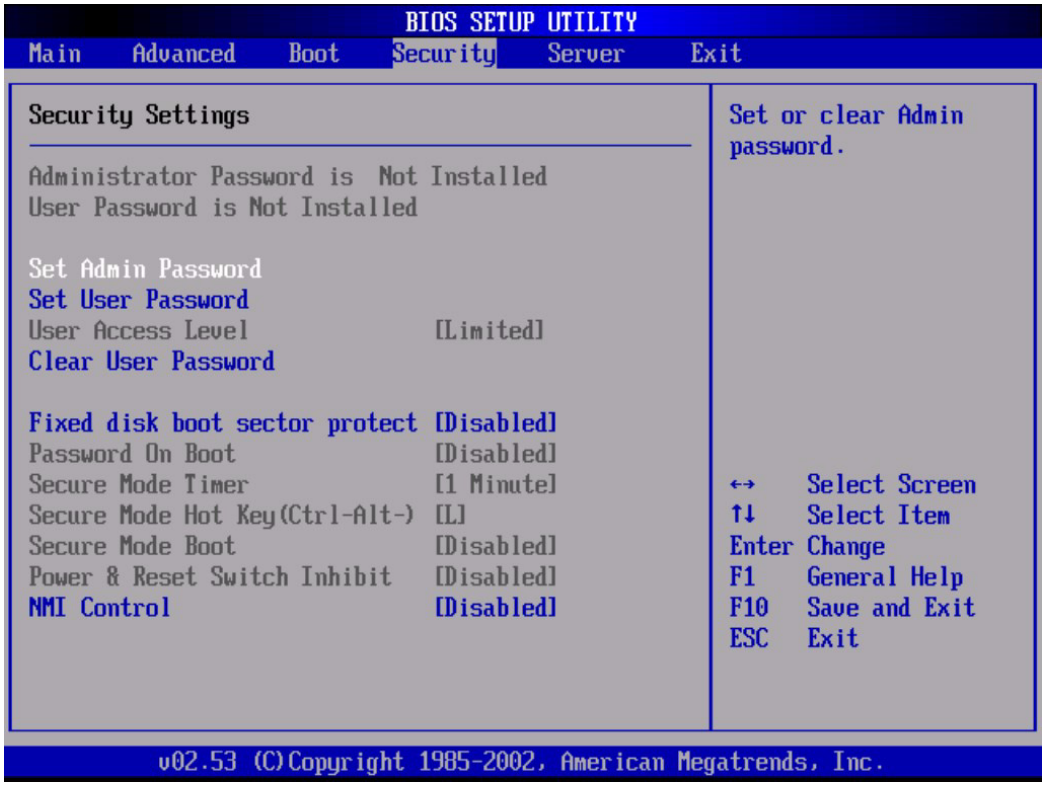
Feature	Options	Help Text	Description
nth Drive	Varies	Specifies the boot sequence from the available devices.	Varies based on system configuration.

Security Menu Options


BIOS SETUP UTILITY
Main Advanced Boot Security Server Exit
Security Settings
Administrator Password is Not Installed
User Password is Not Installed
Set Admin Password
Set User Password
User Access Level [Limited]
Clear User Password
Fixed disk boot sector protect [Disabled]
Password On Boot [Disabled]
Secure Mode Timer [1 Minute]
Secure Mode Hot Key(Ctrl-Alt-) [L]
Secure Mode Boot [Disabled]
Power & Reset Switch Inhibit [Disabled]
NMI Control [Disabled]
Set or clear Admin password.
↔ Select Screen
↑↓ Select Item
Enter Change
F1 General Help
F10 Save and Exit
ESC Exit
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Feature	Options	Help Text	Description
Security Settings			
Administrator Password is	N/A	Install / Not installed	Informational display.
User Password is	N/A	Install / Not installed	Informational display.

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Feature	Options	Help Text	Description
Set Admin Password	N/A	Set or clear Admin password	Pressing enter twice will clear the password. This option is grayed our when entering setup with a user password.
Set User Password	N/A	Set or clear User password	Pressing enter twice will clear the password.
User Access Level	No Access View Only Limited Full Access	LIMITED: allows only limited fields to be changed such as Date and Time. NO ACCESS: prevents User access to the Setup Utility. VIEW ONLY: allows access to the Setup Utility but the fields can not be changed. FULL: allows any field to be changed.	This node is grayed out and becomes active only when Admin password is set.
Clear User Password	N/A	Immediately clears the user password.	Admin uses this option to clear User password (Admin password is used to enter setup is required). This node is gray if Administrator password is not installed.
Fixed disk boot sector protection	Disabled Enabled	Enable/Disable Boot Sector Virus Protection.	

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Feature	Options	Help Text	Description
Password On Boot	Disabled Enabled	If enabled, requires password entry before boot.	This node is grayed out if a user password is not installed.
Secure Mode Timer	1 minute 2 minutes 5 minutes 10 minutes 20 minutes 60 minutes 120 minutes	Period of key/PS/2 mouse inactivity specified for Secure Mode to activate. A password is required for Secure Mode to function. Has no effect unless at least one password is enabled.	This node is grayed out if a user password is not installed.
Secure Mode Hot Key (Ctrl-Alt-)	[L] [Z]	Key assigned to invoke the secure mode feature. Cannot be enabled unless at least one password is enabled. Can be disabled by entering a new key followed by a backspace or by entering delete.	This node is grayed out if a user password is not installed.
Secure Mode Boot	Disabled Enabled	When enabled, allows the host system to complete the boot process without a password. The keyboard will remain locked until a password is entered. A password is required to boot from diskette.	This node is grayed out if a user password is not installed.
Front Panel Switch Inhibit	Disabled Enabled	Disable the Front Panel Power Switch when Secure mode is activated. A password is required to unlock the system.	This node is grayed out if a user password is not installed. This node is hidden if the Intel Management Module is not present.

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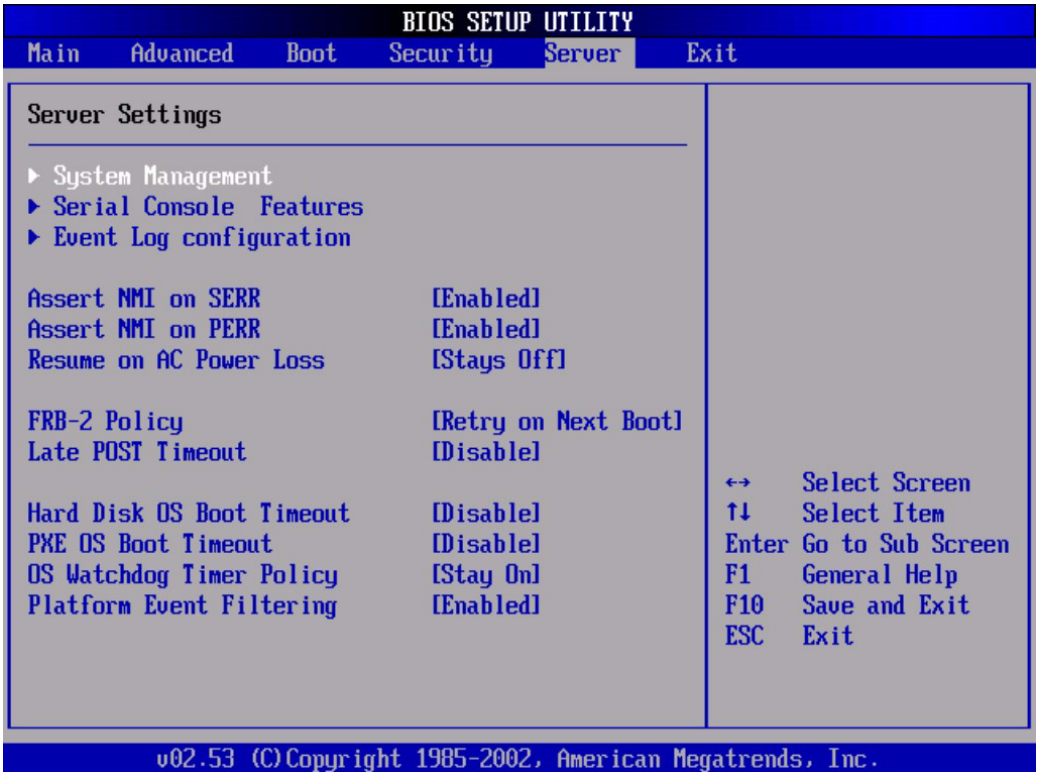
Feature	Options	Help Text	Description
NMI Control	Disabled Enabled	Enable / disable NMI control for the front panel NMI button.	

Server Menu Selections


BIOS SETUP UTILITY
Main Advanced Boot Security Server Exit
Server Settings
System Management
Serial Console Features
Event Log configuration
Assert NMI on SERR [Enabled]
Assert NMI on PERR [Enabled]
Resume on AC Power Loss [Stays Off]
FRB-2 Policy [Retry on Next Boot]
Late POST Timeout [Disable]
Hard Disk OS Boot Timeout [Disable]
PXE OS Boot Timeout [Disable]
OS Watchdog Timer Policy [Stay On]
Platform Event Filtering [Enabled]
↔ Select Screen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
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Feature	Options	Help Text	Description
System management	N/A	N/A	Selects submenu.
Serial Console Features	N/A	N/A	Selects submenu.
Event Log configuration	N/A	Configures event logging.	Selects submenu.

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Feature	Options	Help Text	Description
Assert NMI on SERR	Disabled Enabled	If enabled, NMI is generated on SERR and logged.	
Assert NMI on PERR	Disabled Enabled	If enabled, NMI is generated. SERR option needs to be enabled to activate this option.	Grayed out if "NMI on SERR" is disabled.
Resume on AC Power Loss	Stays Off Power On Last State	Determines the mode of operation if a power loss occurs. Stays off, the system will remain off once power is restored. Power On, boots the system after power is restored.	"Last State" is only displayed if the Intel Management Module is present. When displayed, "Last State" is the default. When set to "Stays Off," "Power Switch Inhibit" is disabled.
FRB-2 Policy	Disable BSP Do not disable BSP Retry on Next Boot Disable FRB2 Timer	This controls action if the boot processor will be disabled or not.	"Disable BSP" and "Do not disable BSP" are only displayed if the Intel Management Module is present.
Late POST Timeout	Disabled 5 minutes 10 minutes 15 minutes 20 minutes	This controls the time limit for add-in card detection. The system is reset on timeout.	
Hard Disk OS Boot Timeout	Disabled 5 minutes 10 minutes 15 minutes 20 minutes	This controls the time limit allowed for booting an operating system from a Hard disk drive. The action taken on timeout is determined by the OS Watchdog Timer policy setting.	

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Feature	Options	Help Text	Description
PXE OS Boot Timeout	Disabled 5 minutes 10 minutes 15 minutes 20 minutes	This controls the time limit allowed for booting an operating system using PXE boot. The action taken on timeout is determined by OS Watchdog Timer policy setting.	
OS Watchdog Timer Policy	Stay On Reset Power Off	Controls the policy upon timeout. Stay on action will take no overt action. Reset will force the system to reset. Power off will force the system to power off.	
Platform Event Filtering	Disabled Enabled	Disable trigger for system sensor events.	

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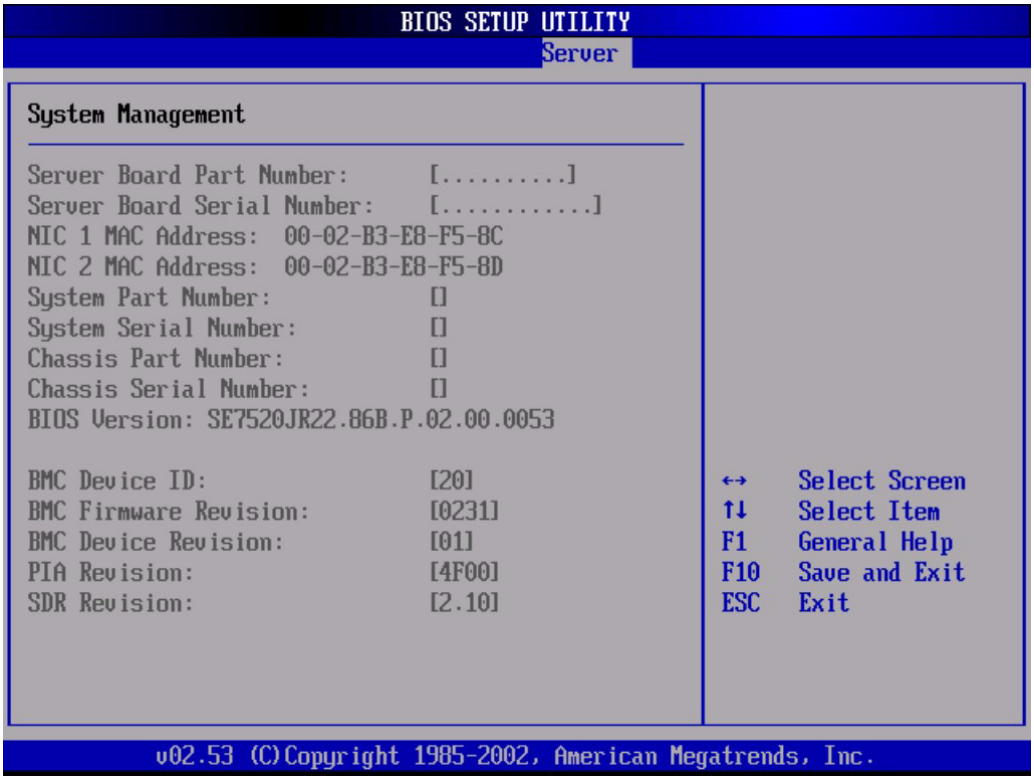
System Management Sub-menu Selections



Feature	Options	Help Text	Description
Server Board Part Number	N/A	N/A	Field contents varies
Server Board Serial Number	N/A	N/A	Field contents varies
NIC 1 MAC Address	N/A	N/A	Field contents varies
NIC 2 MAC Address	N/A	N/A	Field contents varies
System Part Number	N/A	N/A	Field contents varies
System Serial Number	N/A	N/A	Field contents varies

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Feature	Options	Help Text	Description
Chassis Part Number	N/A	N/A	Field contents varies
Chassis Serial Number	N/A	N/A	Field contents varies
BIOS Version	N/A	N/A	BIOS ID string (excluding the build time and date).
BMC Device ID	N/A	N/A	Field contents varies
BMC Firmware Revision	N/A	N/A	Field contents varies
BMC Device Revision	N/A	N/A	Field contents varies
PIA Revision	N/A	N/A	Field contents varies
SDR Revision	N/A	N/A	Field contents varies

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Serial Console Features Sub-menu Selections

BIOS SETUP UTILITY
Server
Serial Console Features
BIOS Redirection Port [Disabled]
Baud Rate [19.2K]
Flow Control [CTS/RTS]
Terminal Type [VT100+]
ACPI Redirection [Disabled]
Serial Port Connector [Serial B]
If enabled, BIOS uses the specified serial port to redirect the console to a remote ANSI terminal. Enabling this option disables Quiet Boot.
↔ Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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Feature	Options	Help Text	Description
Serial Console Features			
BIOS Redirection Port	Disabled Serial A Serial B	If enabled, BIOS uses the specified serial port to redirect the console to a remote ANSI terminal. Enabling this option disables Quiet Boot.	When the Management Module is present, the help text directs the user to select Serial B for Serial Over LAN.
		If enabled, BIOS uses the specified serial port to redirect the console to a remote ANSI terminal. Enabling this option disables Quiet Boot. For Serial Over LAN, select Serial B.	

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Feature	Options	Help Text	Description
Baud Rate	9600 19.2K 38.4K 57.6K 115.2K	N/A	
Flow Control	No Flow Control CTS/RTS XON/XOFF CTS/RTS + CD	If enabled, it will use the Flow control selected. CTS/RTS = Hardware XON/XOFF = Software CTS/RTS + CD = Hardware + Carrier Detect for modem use.	
Terminal Type	PC-ANSI VT100+ VT-UTF8	VT100+ selection only works for English as the selected language. VT-UTF8 uses Unicode. PC-ANSI is the standard PC-type terminal.	
ACPI Redirection port	Disabled Serial A Serial B	Enable / Disable the ACPI OS Headless Console Redirection.	

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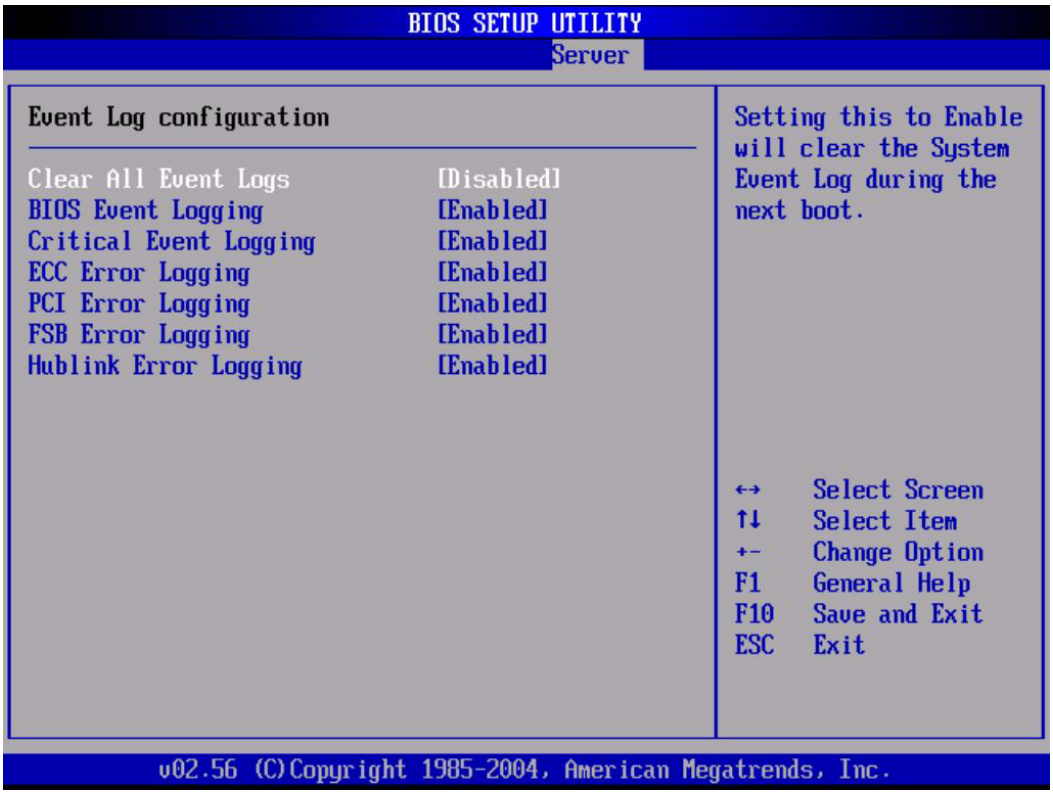
Event Log Configuration Sub-menu Selections


BIOS SETUP UTILITY
Server
Event Log configuration
Clear All Event Logs [Disabled]
BIOS Event Logging [Enabled]
Critical Event Logging [Enabled]
ECC Error Logging [Enabled]
PCI Error Logging [Enabled]
FSB Error Logging [Enabled]
Hublink Error Logging [Enabled]
Setting this to Enable will clear the System Event Log during the next boot.
↔ Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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Feature	Options	Help Text	Description
Event Log Configuration			
Clear All Event Logs	Disabled Enabled	Setting this to Enabled will clear the System Event Log during the next boot.	
BIOS Event Logging	Disabled Enabled	Select enabled to allow logging of BIOS events.	Enables BIOS to log events to the SEL. This option controls BIOS events only.

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Feature	Options	Help Text	Description
Critical Event Logging	Disabled Enabled	If enabled, BIOS will detect and log events for system critical errors. Critical errors are fatal to system operation. These errors include PERR, SERR, ECC.	Enable SMM handlers to detect and log events to SEL.
ECC Event Logging	Disabled Enabled	Enables or Disables ECC Event Logging.	Grayed out if "Critical Event Logging" option is disabled.
PCI Error Logging	Disabled Enabled	Enables or Disables PCI Error Logging.	Grayed out if "Critical Event Logging" option is disabled.
FSB Error Logging	Disabled Enabled	Enables or Disables Front-Side Bus Error Logging.	Grayed out if "Critical Event Logging" option is disabled.
Hublink Error Logging	Disabled Enabled	Enables or Disables Hublink Error Logging.	Grayed out if "Critical Event Logging" option is disabled.

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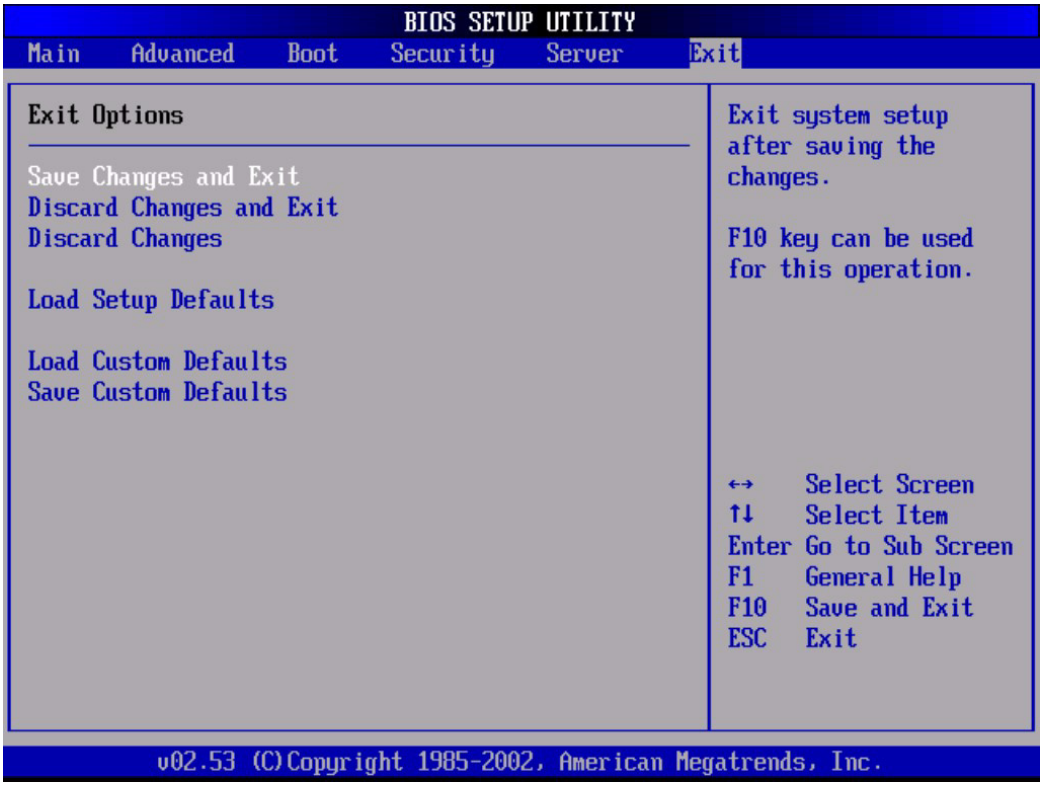
Exit Menu Selections



Feature	Options	Help Text	Description
Exit Options			Exit Options
Save Changes and Exit	N/A	Exit system setup after saving the changes. F10 key can be used for this operation.	Save Changes and Exit
Discard Changes and Exit	N/A	Exit system setup without saving any changes. ESC key can be used for this operation.	Discard Changes and Exit
Discard Changes	N/A	Discards changes done so far to any of the setup questions. F7 key can be used for this operation.	Discard Changes

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Feature	Options	Help Text	Description
Load Setup Defaults	N/A	Load Setup Default values for all the setup questions. F9 key can be used for this operation.	Load Setup Defaults
Load Custom Defaults	N/A	Load custom defaults.	Load Custom Defaults
Save Custom Defaults	N/A	Save custom defaults	Save Custom Defaults

Upgrading the BIOS

The upgrade utility allows you to upgrade the BIOS in flash memory. The code and data in the upgrade file include the following:

- On-board system BIOS, including the recovery code, BIOS Setup Utility, and strings.
- On-board video BIOS, SCSI BIOS, and other option ROMs for devices embedded on the server board.
- OEM binary area
- Microcode
- A means to change the BIOS Language

Preparing for the Upgrade

The steps below explain how to prepare to upgrade the BIOS, including how to record the current BIOS settings and how to obtain the upgrade utility.

Note: In the unlikely event that a BIOS error occurs during the BIOS update process, a recovery process may need to be followed to return the system to service.

Recording the Current BIOS Settings

1 Boot the computer and press <F2> when you see the message:Press <F2> Key if you want to run SETUP

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2 Write down the current settings in the BIOS Setup program.

Note: Do not skip step 2. You will need these settings to configure your computer at the end of the procedure.

Obtaining the Upgrade

Download the BIOS image file to a temporary folder on your hard drive.

Note: Review the instructions and release notes that are provided in the readme file distributed with the BIOS image file before attempting a BIOS upgrade. The release notes contain critical information regarding jumper settings, specific fixes, or other information to complete the upgrade.

Upgrading the BIOS

Follow the instructions in the readme file that came with the BIOS upgrade. When the update completes, remove the bootable media from which you performed the upgrade.

Note: Do not power down the system during the BIOS update process! The system will reset automatically when the BIOS update process is completed. You may encounter a CMOS Checksum error or other problem after reboot. If this happens, shut down the system and boot it again. CMOS checksum errors require that you enter Setup, check your settings, save your settings, and exit Setup.

Clearing the Password

If the user or administrator password(s) is lost or forgotten, moving the password clear jumper into the “clear” position clears both passwords. The password clear jumper must be restored to its original position before a new password(s) can be set. The password clear jumper is located on jumper block J1H2.

1 Power down the system and disconnect the AC power.

2 Open the server chassis.

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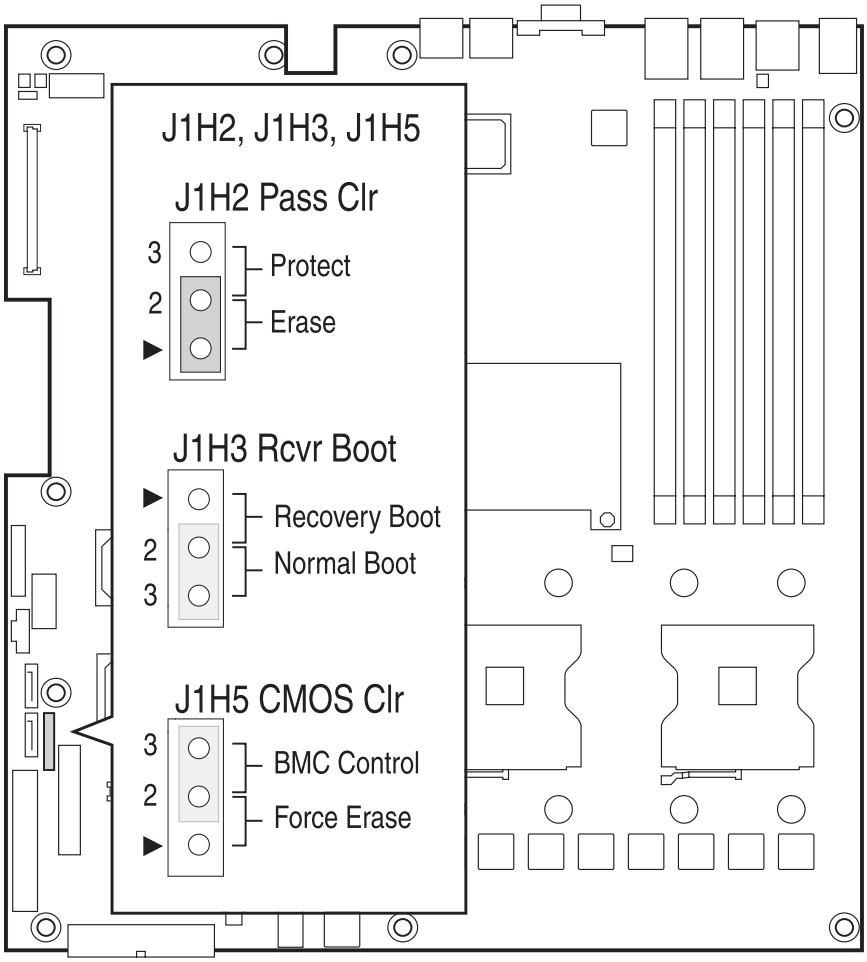
3 Move the jumper from the normal operation position, Password Clear Protect, at pins 2 and 3 to the Password Clear Erase position, covering pins 1 and 2 as indicated in the following diagram.



4 Reconnect the AC power, power up the system.

5 Power down the system and disconnect the AC power.

6 Return the Password Clear jumper to the Password Clear Protect position, covering pins 2 and 3.

7 Close the server chassis.

8 Reconnect the AC power and power up the server.

Clearing the CMOS

If you are not able to access the BIOS setup screens, the CMOS Clear jumper will need to be used to reset the configuration RAM. The CMOS Clear jumper is located on jumper block J1H5.

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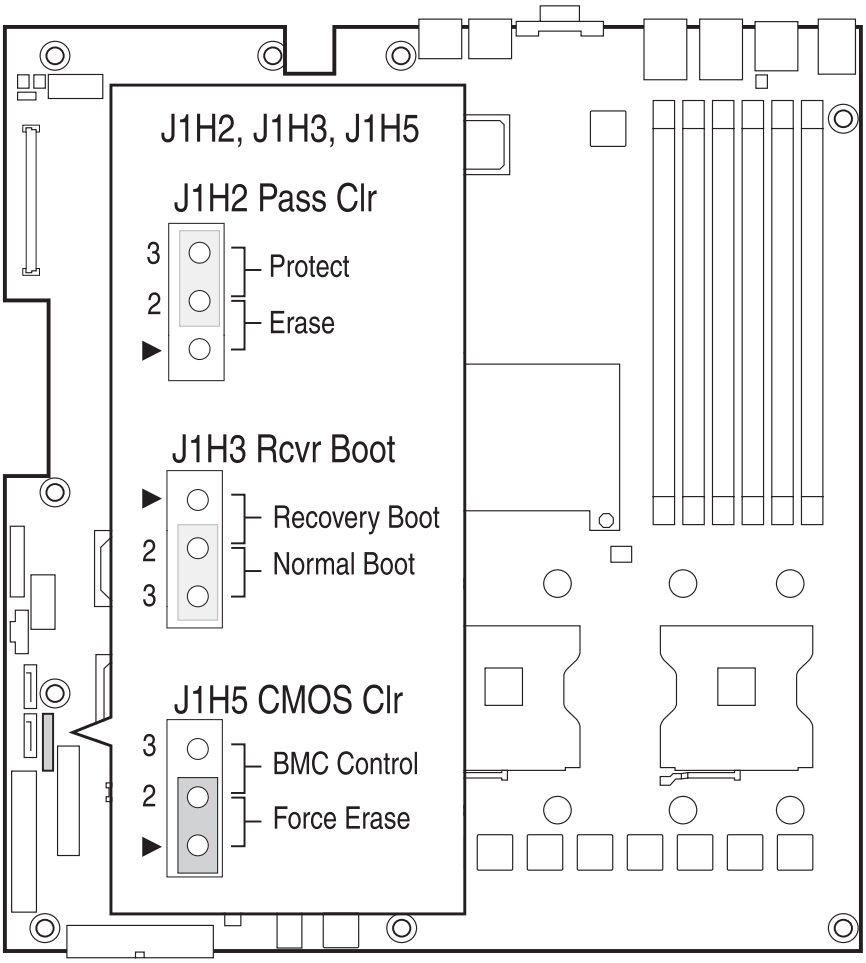
1 Power down the system and disconnect the AC power.

2 Open the server.

3 Move the jumper from the normal operation position, CMOS Clear by BMC, at pins 2 and 3 to the CMOS Clear Force Erase position, covering pins 1 and 2 as indicated in the following diagram.



4 Reconnect the AC power, power up the system.

5 When the system begins beeping, power it down and disconnect the AC power.

6 Return the CMOS Clear jumper to the CMOS Clear by BMC location, covering pins 2 and 3.

7 Close the server chassis.

8 Reconnect the AC power and power up the system.

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6 Troubleshooting

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This chapter helps you identify and solve problems that might occur while you are using the system.

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For any issue, first ensure you are using the latest firmware and files. Firmware upgrades include updates for BIOS, the baseboard management controller (BMC), and the hot-swap controller (HSC). In addition to the server firmware and files, also update any drivers used for components you have installed in your system, such as video drivers, network drivers, and SCSI drivers.

Acer provides a package called the "Platform Confidence Test" that may help with your diagnostics.

If you are unable to resolve your server problems on your own.

Resetting the System

Before going through in-depth troubleshooting, attempt first to perform reset your system using one of the methods below.

To do this:	Press:
Soft boot reset to clear the system memory and reload the operating system.	<Ctrl+Alt+Del>
Clear system memories, restarts POST, and reload the operating system.	Reset button
Cold boot reset. Turn the system power off and then on. This clears system memory, restarts POST, reloads the operating system, and halts power to all peripherals.	Power off/on

Problems following Initial System Installation

Problems that occur at initial system startup are usually caused by an incorrect installation or configuration. Hardware failure is a less frequent cause. If the problem you are experiencing is with a specific software application.

First Steps Checklist

- Is AC power available at the wall outlet?
- Are the power supplies plugged in? Check the AC cable(s) on the back of the chassis and at the AC source.

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- Are all cables correctly connected and secured?
- Are the processors fully seated in their sockets on the server board?
- Are all standoffs in the proper location and not touching any components, causing a potential short?
- Are all add-in PCI boards fully seated in their slots on the server board?
- Are all jumper settings on the server board correct?
- Are all jumper and switch settings on add-in boards and peripheral devices correct? To check these settings, refer to the manufacturer's documentation that comes with them. If applicable, ensure that there are no conflicts—for example, two add-in boards sharing the same interrupt.
- Are all peripheral devices installed correctly?
- If the system has a hard disk drive, is it properly formatted or configured?
- Are all device drivers properly installed?
- Are the configuration settings made in Setup correct?
- Is the operating system properly loaded? Refer to the operating system documentation.
- Did you press the system power on/off switch on the front panel to turn the server on (power on light should be lit)?
- Is the system power cord properly connected to the system and plugged into a NEMA 5-15R outlet for 100-120 V~ or a NEMA 6-15R outlet for 200-240 V~?
- Are all integrated components from the tested components lists? Check the tested memory, and chassis lists, as well as the supported hardware and operating system list.

Hardware Diagnostic Testing

This section provides a more detailed approach to identifying a hardware problem and locating its source.

Caution: Turn off devices before disconnecting cables: Before disconnecting any peripheral cables from the system, turn off the system and any external peripheral devices. Failure to do so can cause permanent damage to the system and/or the peripheral devices.

1 Turn off the system and all external peripheral devices. Disconnect each device from the system, except for the keyboard and the video monitor.

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2 Make sure the system power cord is plugged into a properly grounded AC outlet.

3 Make sure your video display monitor and keyboard are correctly connected to the system. Turn on the video monitor. Set its brightness and contrast controls to at least two thirds of their maximum ranges (see the documentation supplied with your video display monitor).

4 If the operating system normally loads from the hard disk drive, make sure there is no diskette in drive A and no CD-ROM disk in the CD-ROM drive.

5 If the power LED does light, attempt to boot from a floppy diskette or from a CD-ROM disk.

6 Turn on the system. If the power LED does not light, see "Power Light Does Not Light."

Verifying Proper Operation of Key System Lights

As POST determines the system configuration, it tests for the presence of each mass storage device installed in the system. As each device is checked, its activity light should turn on briefly. Check for the following:

- Does the diskette drive activity light turn on briefly? If not, see "Diskette Drive Activity Light Does Not Light."Diskette Drive Activity Light Does Not Light
- If system LEDs are illuminated, see LED Information"" for a description of the light and steps to take to correct the problem.

Confirming Loading of the Operating System

Once the system boots up, the operating system prompt appears on the screen. The prompt varies according to the operating system. If the operating system prompt does not appear, see "No Characters Appear on Screen"

Specific Problems and Corrective Actions

This section provides possible solutions for these specific problems:

- Power light does not light.
- No characters appear on screen.
- Characters on the screen appear distorted or incorrect.

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- System cooling fans do not rotate.
- Diskette drive activity light does not light.
- Hard disk drive activity light does not light.
- CD-ROM drive activity light does not light.
- There are problems with application software.
- The bootable CD-ROM is not detected.

Try the solutions below in the order given. If you cannot correct the problem, contact your service representative or authorized dealer for help.

Power Light Does Not Light

Check the following:

- Did you press the power-on button?
- Is the system operating normally? If so, the power LED might be defective or the cable from the control panel to the server board might be loose.
- Have you securely plugged the server AC power cord into the power supply?
- Some ATX power supplies have a power switch on the back of the power supply, next to the fan. If your system has one, is it turned on?
- Remove all add-in cards and see if the system boots. If successful, add the cards back in one at a time with a reboot between each addition.
- Make sure the memory DIMMs comply with the system requirements.
- Make sure the memory DIMMs have been populated according to the system requirements.
- Remove the memory DIMMs and re-seat them.
- Make sure the processor(s) comply with the system requirements.
- Make sure the processor(s) have been populated according to the system requirements.
- Remove the processor(s) and re-seat them.
- Make sure the chassis standoffs are installed only below mounting holes. Misplaced standoffs can contact the pins on the bottom of the server board and cause a short.

No Characters Appear on Screen

Check the following:

- Is the keyboard functioning? Test it by turning the “Num Lock” function on and off to make sure the Num Lock light is functioning.
- Is the video monitor plugged in and turned on? If you are using a switch

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box, is it switched to the correct system?

- Are the brightness and contrast controls on the video monitor properly adjusted?
- Is the video monitor signal cable properly installed?
- Does this video monitor work correctly if plugged into a different system?
- Is the onboard video controller enabled in the BIOS?
- Remove all add-in cards and see if the video returns. If successful, add the cards back in one at a time with a reboot between each addition.
- Make sure the memory DIMMs comply with the system requirements.
- Make sure the memory DIMMs have been populated according to the system requirements.
- Remove the memory DIMMs and re-seat them.
- Make sure the processor(s) comply with the system requirements.
- Make sure the processor(s) have been populated according to the system requirements.
- Remove the processor(s) and re-seat them.

If you are using an add-in video controller board, do the following:

1 Verify that the video works using the onboard video controller.

2 Verify that the video controller board is fully seated in the server board connector.

3 Reboot the system for changes to take effect.

4 If there are still no characters on the screen after you reboot the system and POST emits a beep code, write down the beep code you hear. This information is useful for your service representative.

5 If you do not receive a beep code and characters do not appear, the video display monitor or video controller may have failed. Contact your service representative or authorized dealer for help.

Characters Are Distorted or Incorrect

Check the following:

- Are the brightness and contrast controls properly adjusted on the video monitor? See the manufacturer's documentation.
- Are the video monitor's signal and power cables properly installed?
- Does this video monitor work correctly if plugged into a different system?

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System Cooling Fans Do Not Rotate Properly

If the system cooling fans are not operating properly, it is an indication of possible system component failure.

Check the following:

- Is the power-on light lit? If not, see "Power Light Does Not Light"
- If your system has LED lights for the fans, is one or more of these LEDs lit?
- Are any other control panel LEDs lit?
- Have any of the fan motors stopped? Use the server management subsystem to check the fan status.
- Have your fans speeded up in response to an overheating situation?
- Have your fans speeded up in response to a fan that has failed?
- Are the fan power connectors properly connected to the server board?
- Is the cable from the control panel board connected to the both the control panel board and to the server board?
- Are the power supply cables properly connected to the server board?
- Are there any shorted wires caused by pinched-cables or have power connector plugs been forced into power connector sockets the wrong way?

Diskette Drive Activity Light Does Not Light

Check the following:

- Are the diskette drive's power and signal cables properly installed?
- Are all relevant switches and jumpers on the diskette drive set correctly?
- Is the diskette drive properly configured?
- Is the diskette drive activity light always on? If so, the signal cable may be plugged in incorrectly.

If you are using the onboard diskette controller, use the BIOS setup to make sure that "Onboard Floppy" is set to "Enabled." If you are using an add-in diskette controller, make sure that "Onboard Floppy" is set to "Disabled."

CD-ROM Drive or DVD/CD-RW Drive Activity Light Does Not Light

Check the following:

- Are the CD-ROM/DVD/CD-RW drive's power and signal cables properly installed?
- Are all relevant switches and jumpers on the drive set correctly?

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- Is the drive properly configured?

Cannot Connect to a Server

- Make sure the network cable is securely attached to the correct connector at the system back panel.
- Try a different network cable.
- Make sure you are using the correct and the current drivers.
- Make sure the driver is loaded and the protocols are bound.
- Make sure the hub port is configured for the same duplex mode as the network controller.
- Make sure the correct networking software is installed.
- If you are directly connecting two servers (without a hub), you will need a crossover cable.
- Check the network controller LEDs next to the NIC connectors.

Problems with Network

The server hangs when the drivers are loaded.

- Certain drivers may require interrupts that are not shared with other PCI drivers. For these drivers, it may be necessary to alter settings so that interrupts are not shared. See the documentation that came with your PCI card(s) for information on changing interrupts.

Diagnostics pass but the connection fails.

- Make sure the network cable is securely attached.
- Make sure you specify the correct frame type in your NET.CFG file.

The controller stopped working when an add-in adapter was installed.

- Make sure the cable is connected to the port from the onboard network controller.
- Make sure your BIOS is current.
- Make sure the other adapter supports shared interrupts. Make sure your operating system supports shared interrupts.
- Try reseating the add-in adapter.

The add-in adapter stopped working without apparent cause.

- Try reseating the adapter first; then try a different slot if necessary.
- The network driver files may be corrupt or deleted. Delete and then reinstall the drivers.
- Run the diagnostics.

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System Boots when Installing PCI Card

System Server Management features require full-time "standby" power. This means some parts of the system have power going to them whenever the power cord is plugged in, even if you have turned the system power off with the power button on the front panel. If you install a PCI card with the AC power cord plugged in, a signal may be sent to command the system to boot. Before installing a PCI card, you should always:

- Turn off the server power by using the power button on the front of the system.
- Unplug the AC power cord(s) from the server.

Problems with Newly Installed Application Software

Problems that occur when you run new application software are usually related to the software, not the server hardware. Faulty equipment is unlikely, especially if other software runs correctly.

Check the following:

- Make sure the system meets the minimum hardware requirements for the software. See the software documentation.
- Make sure the software is properly installed and configured for the system. See the software documentation.
- Use only an authorized copy. Unauthorized copies often do not work.
- If you are running the software from a floppy disk, CD-ROM or DVD/CD-RW, try a different disk.
- Make sure the correct device drivers installed.
- If the problems persist, contact the software vendor's customer service representative.

Problems with Application Software that Ran Correctly Earlier

Problems that occur after the system hardware and software have been running correctly sometimes indicate equipment failure. However, they can also be caused by file corruption or changes to the software configuration.

Check the following:

- If you are running the software from a floppy disk, CD-ROM or DVD/CD-RW, try a different disk.

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- Check your system for a virus infection.
- Uninstall and reinstall the software. Make sure all necessary files are installed.
- If the problems are intermittent, there may be a loose cable, dirt in the keyboard (if keyboard input is incorrect), a marginal power supply, or other random component failures.
- If you suspect that a transient voltage spike, power outage, or brownout might have occurred, reload the software and try running it again. Symptoms of voltage spikes include a flickering video display, unexpected system reboots, and the system not responding to user commands.

Note: Random errors in data files: If you are getting random errors in your data files, they may be getting corrupted by voltage spikes on your power line. If you are experiencing any of the above symptoms that might indicate voltage spikes on the power line, you may want to install a surge suppressor between the power outlet and the system power cord.

Devices are not Recognized under Device Manager (Windows* Operating System)

The Windows(*) operating systems do not include all of the drivers for the Intel® chipsets, onboard NICs, and other components.

Hard Drive(s) are not recognized

Check the following:

- Make sure the drive is not disabled in BIOS Setup.
- Make sure the drive is connected correctly and that is plugged into the power supply.
- Make sure the drive is compatible.
- Make sure you have not exceeded the power budget for the server.
- If using SCSI drives, verify that each SCSI ID number is unique on the SCSI bus. See your drive documentation for details on setting the SCSI ID for your drives.
- If using ATA drives, verify that the master/slave settings are set correctly. See your drive documentation for details on setting the master/slave settings.
- If using a RAID configuration with SCSI or SATA drives, make sure the RAID card is installed correctly.

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Bootable CD-ROM Is Not Detected

Check the following:

- Make sure the BIOS are configured to allow the CD-ROM to be the first bootable device.

LED Information

The Acer Altos R510 includes LEDs that can aid in troubleshooting your system. A table of these LEDs with a description of their use is listed below.

Name	Function	Location	Color	Notes
ID	Aid in server identification from the back panel	Control panel and board rear left corner	Blue	Press ID LED button or user Server Management software to turn on the LED.
System fault	Visible fault warning	Control panel and board rear left corner	Green or Amber	• On = No Fault • Green Blink = degraded • Amber = critical error or non-recoverable • Amber blink = non-critical
Hard drive activity	Control panel	Control panel	Green	Blinking = Activity. No action required.
Memory fault 1–6	Identify failing memory module	DIMM end rear of board	Amber	On = Fault
Diagnostic LEDs. 1–4 (LSB, bit1, bit2, MSB)	Displays port 80 POST codes	Center back edge of board	Each LED can be Off, Green, Amber, Red	See the POST code table

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Name	Function	Location	Color	Notes
CPU 1 & 2 Fan Fault	Identify fan failure	Front center board	Amber	On = Fault
CPU 1 & 2 Fault	Identify processor failure	1” behind processor socket	Amber	On = Fault
5v Standby	Identify 5v standby power on state	Front left board	Amber	On = 5v standby power on
Power LED	Identify the power state of the system	Control Panel	Green	• Off = Power is off (off or S5) • On = Power on or S0) • Slow Blink = Low power state (S1 – S3)

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Appendix A: Management software installation

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This appendix shows you how to install the ASM software packages.

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Installing ASM

Acer Server Manager (ASM) consists of the ASM Console and the ASM Agent. These two components are both required to perform server management tasks.

System requirements

ASM requires TCP/IP connectivity between the ASM Console and the ASM Agent.

ASM Agent

- Altos Server System
- Minimum of 256MB RAM
- IDE/SATA/SCSI hard drive with at least 100 MB free hard disk space
- Windows 2000 server/advanced server, Windows server 2003 web/ standard/Enterprise editions, Red Hat Enterprise Linux 3.0

ASM Console

- Intel Pentium III (500 MHz) or higher processor
- 128 MB of RAM
- SCSI/IDE hard drive with at least 100 MB free hard disk space
- Ethernet card
- Windows 2000 professional, Windows XP, Windows 2000 server/ advanced server, Windows server 2003 web/standard/Enterprise editions, Red Hat Linux 9.0 or Red Hat Enterprise Linux 3.0

System setup

Make sure that your system meets the requirements listed above before proceeding. You may also want to change your screen to 800 x 600 resolution or higher for optimum viewing.

Installing ASM Agent (Windows version)

To install ASM Agent:

1 Log in to the managed server using the Administrator account.

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2 Insert the EasyBUILD™ Management CD into the server's CD-ROM drive.

The installation sequence will automatically begin.

3 Select the option for ASM installation.

The installation wizard will be initialized.

4 Follow all onscreen instructions to complete installation.

For detailed instructions on installing ASM Agent, refer to the ASM User's manual.

ASM Agent will auto-launch as a Windows service after rebooting the system.

Installing ASM Console (Windows version)

To install ASM Console:

1 Log in to the target Windows-based PC using the Administrator account.

2 Insert the EasyBUILD™ Management CD into the computer's CD-ROM drive.

The installation sequence will automatically begin.

3 Select the option for ASM installation.

The installation wizard will be initialized.

4 Follow all onscreen instructions to complete installation.

For detailed instructions on installing ASM Console, refer to the ASM User's manual.

To launch the program, on the Windows taskbar click on the **Start** button, point to **programs**, select **Acer Server Manager** then click **Acer Server Manager**

Installing ASM Agent (Linux version)

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To install the ASM6 Agent on RedHat Linux 9.0

1 Insert the ASM6 installation CD into your computer's optical drive.

2 Mount the CD-ROM drive with "mount /dev/cdrom /mnt/cdrom" command. For more information on mount command and the options, please refer to RedHat Linux user's guide.

3 Change the working directory to ASM6 Linux Agent subdirectory with the command "cd /mnt/cdrom/LinuxAgent".

4 Type in the command "./asmsetup install" to install the ASM6 Linux Agent. Follow the prompted installation guide, and you can install the ASM6 Linux Agent with ease.

5 Umount the CD-ROM Drive with "umount /mnt/cdrom" command.

For detailed instructions on installing ASM Agent on Linux systems, refer to the ASM User’s manual.

ASM agent will auto-launch demon service after rebooting the system. There is no Linux version of ASM Console.

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Appendix B: Tool-less rail kit installation

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This appendix shows you how to use the optional rail kit to put your Altos R510 server into a server rack.

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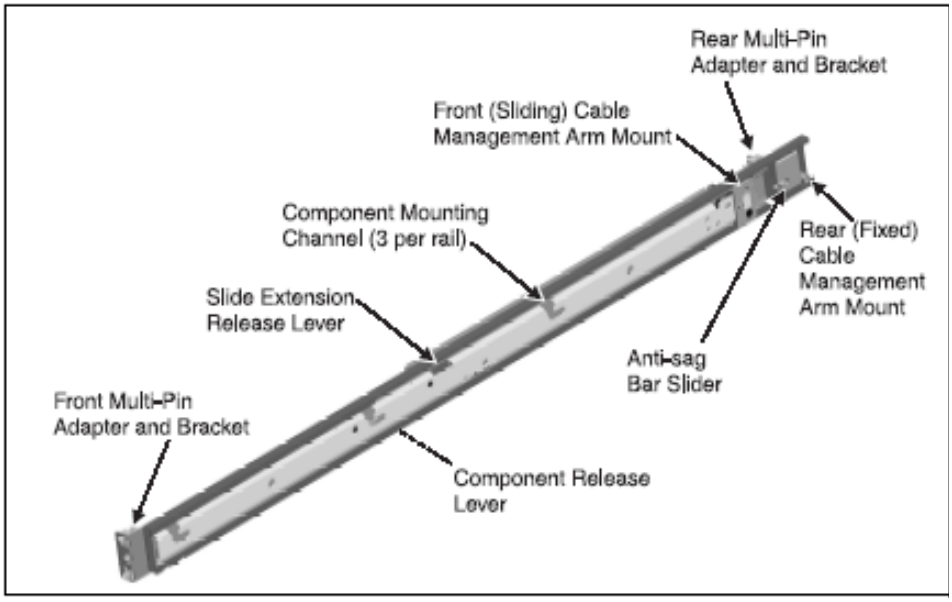
Tool-less rail kit installation

Note: Read the General Safety Information on the other side of this sheet before attempting installation.

The Slide Rails consist of individual left and right Slide Rails. Details of the Slide Rails are shown below.



Setting the Multi-Pin Adapters for Rack Type

lThe 10-32 threaded hole in the center of the Multi-Pin Adapter is for securing during shipping (if desired) and for the attachment of front panel blanks (if desired).

lThe Slide Rails are shipped with the Multi-Pin Adapters set for square holes. If your rack has square mounting holes, skip this section.

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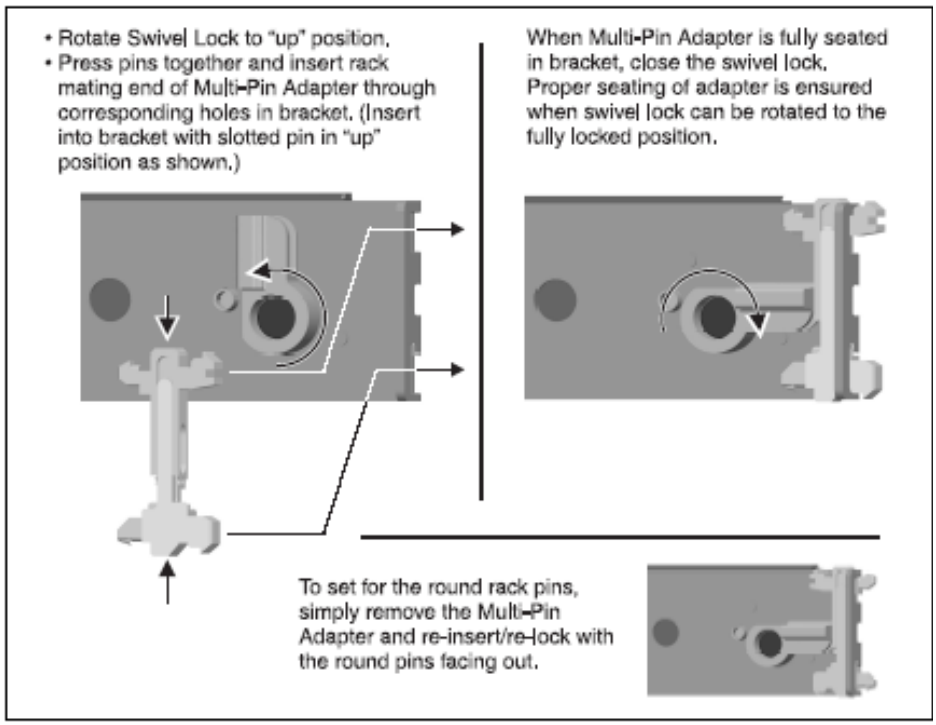
The Multi-Pin Adapters allow the Slide Rails to be used in racks that have square mounting holes or round mounting holes.

1.On each Slide Rail, reverse the Multi-Pin Adapter position to match the rack mounting hole type if necessary. Remove the Multi-Pin Adapter by rotating the Swivel Lock up, pressing the mounting pins together, and then pulling the adapter from the Multi-Pin Bracket.

2.Install the Multi-Pin Adapter by pressing the pins together while inserting adapter into bracket. Multi-Pin Adapter must be fully locked in bracket. Make certain both mounting pins on Multi-Pin Adapter are fully engaged in Multi-Pin Bracket, then lock Multi-Pin Adapter in place using the Swivel Lock.

3.Repeat the above steps for both ends of each Slide Rail.


• Rotate Swivel Lock to "up" position.
• Press pins together and insert rack mating end of Multi-Pin Adapter through corresponding holes in bracket. (Insert into bracket with slotted pin in "up" position as shown.)
When Multi-Pin Adapter is fully seated in bracket, close the swivel lock. Proper seating of adapter is ensured when swivel lock can be rotated to the fully locked position.
To set for the round rack pins, simply remove the Multi-Pin Adapter and re-insert/re-lock with the round pins facing out.

Installing the Slide Rails into the Rack

1.At all four rack uprights, determine the vertical position in the rack where the Slide Rails are to be installed. The top-most mounting hole for a particular Rack Unit (RU) mounting position is

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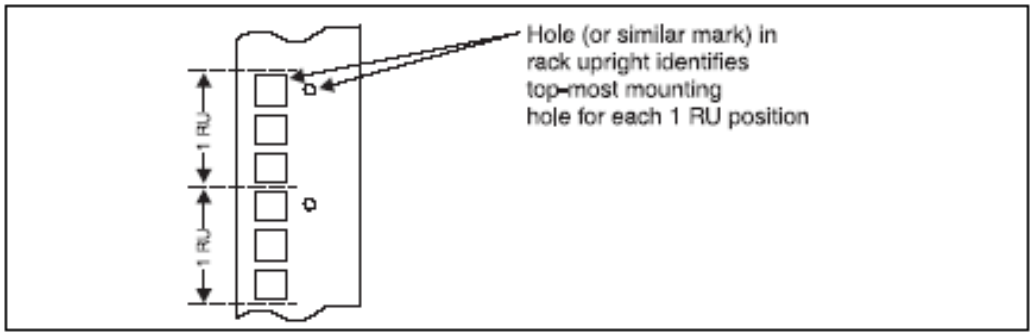
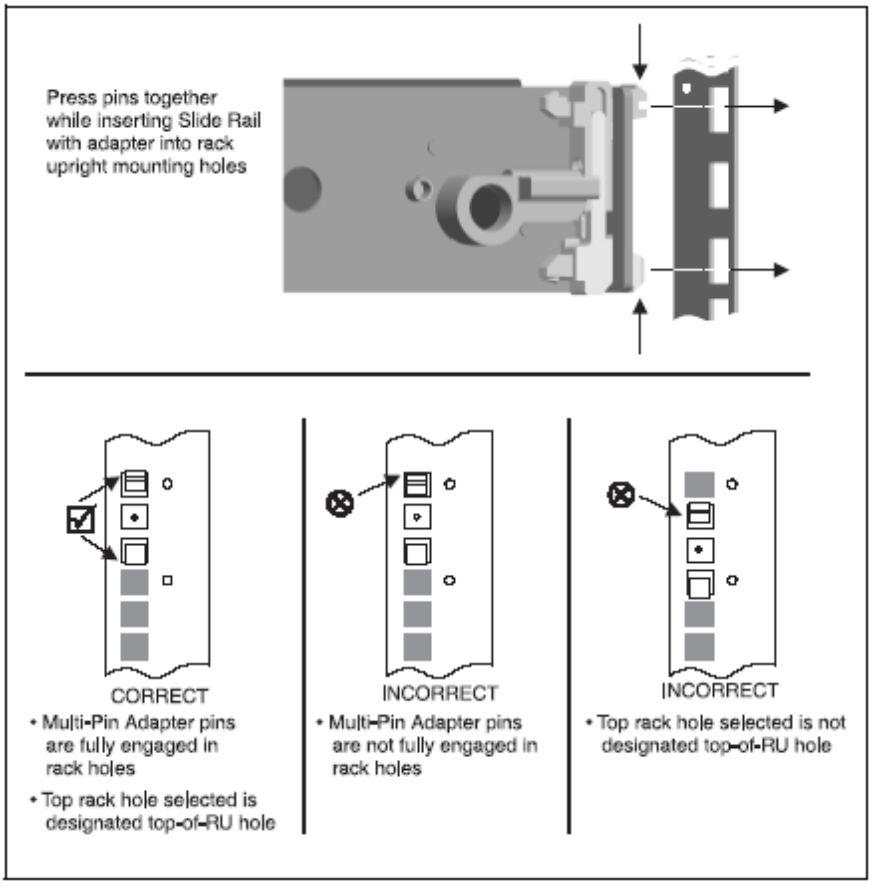
typically identified by a mark or hole.



Caution! If Slide Rail is mounted in holes which are not vertically aligned from front to back, the Slide Rail may be damaged and mounting will not be secure.

2.Noting the holes determined in the previous step, align the left Slide Rail with its mounting holes.

3.Hold the Slide Rail in desired rack mounting position. At the rear of Slide Rail, press the Multi-Pin Adapter mounting pins together and insert the Slide Rail into rack upright.


Press pins together
while inserting Slide Rail
with adapter into rack
upright mounting holes
CORRECT
• Multi-Pin Adapter pins are fully engaged in rack holes
• Top rack hole selected is designated top-of-RU hole
INCORRECT
• Multi-Pin Adapter pins are not fully engaged in rack holes
INCORRECT
• Top rack hole selected is not designated top-of-RU hole

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4.Making certain the proper mounting holes on rack upright are selected, repeat the above step at the Slide Rail front mounting position. Ensure Slide Rail is level.

5.Fully extend the Slide Rail to its fully extended (locked) position. Press the Slide Extension Release Levers to release the lock. Move the Slide Rail in and out throughout its entire range of motion and make certain it does not bind. If binding is noticed, recheck the mounting positions.

6.Repeat steps 2 through 5 for the right Slide Rail, ensuring that it is parallel and level with the left Slide Rail.

Installing the Component into the Slide Rails

Note: If optional Cable Management Arm (CMA) is to be installed, install it now before installing the component. Access to rear of Slide Rails is required to install the CMA. (See Cable Management Arm Installation on the other side of this sheet for CMA installation instructions.)

1.Extend both Slide Rails into the fully extended (locked) position.

2.Align the mounting studs with the Component Mounting Channels on the Slide Rails.

3.Carefully place the component's mounting studs in the Component Mounting Channels on the Slide Rails.

Allow the component mounting studs to fully seat in the Component Mounting Channels. The Component Release Levers (one on each Slide Rail) pivot out of the way and then back in place when the studs are

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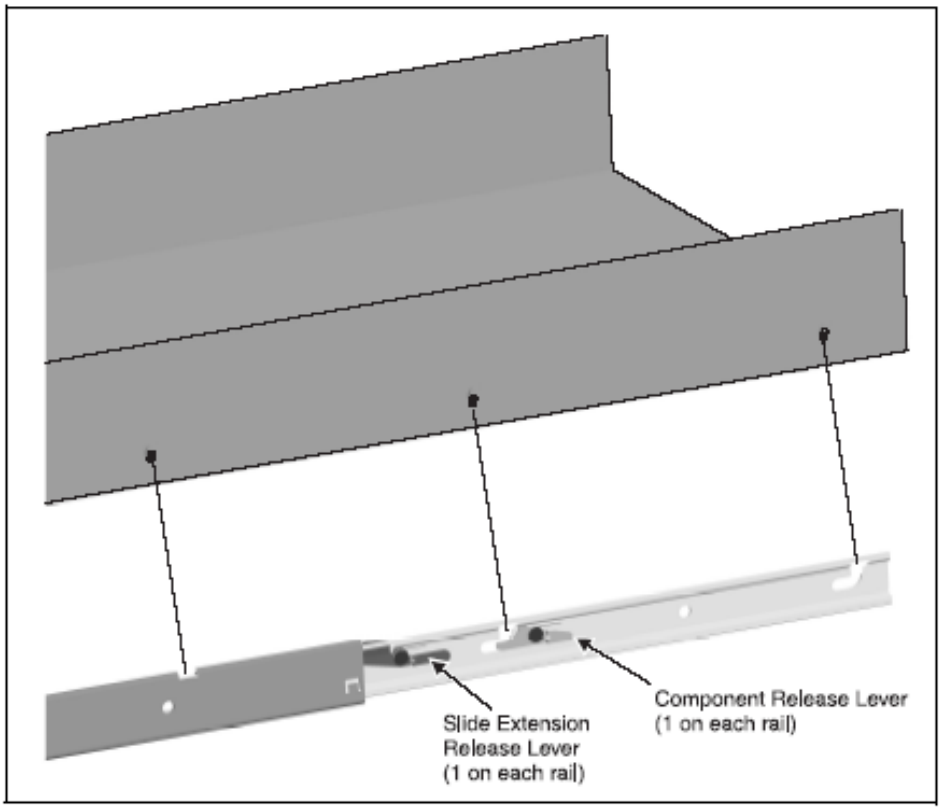
fully engaged in the mounting channels. Ensure that the Component Release Levers are in locked position.



4.Press and hold the left and right Slide Extension Release Levers and slowly slide the component and Slide Rails into the fully retracted position.

Cable Management ARM installation

Note: Read the General Safety Information below before attempting installation. The Cable Management Arm (CMA) pivots at its rear mounting position, and slides along its front

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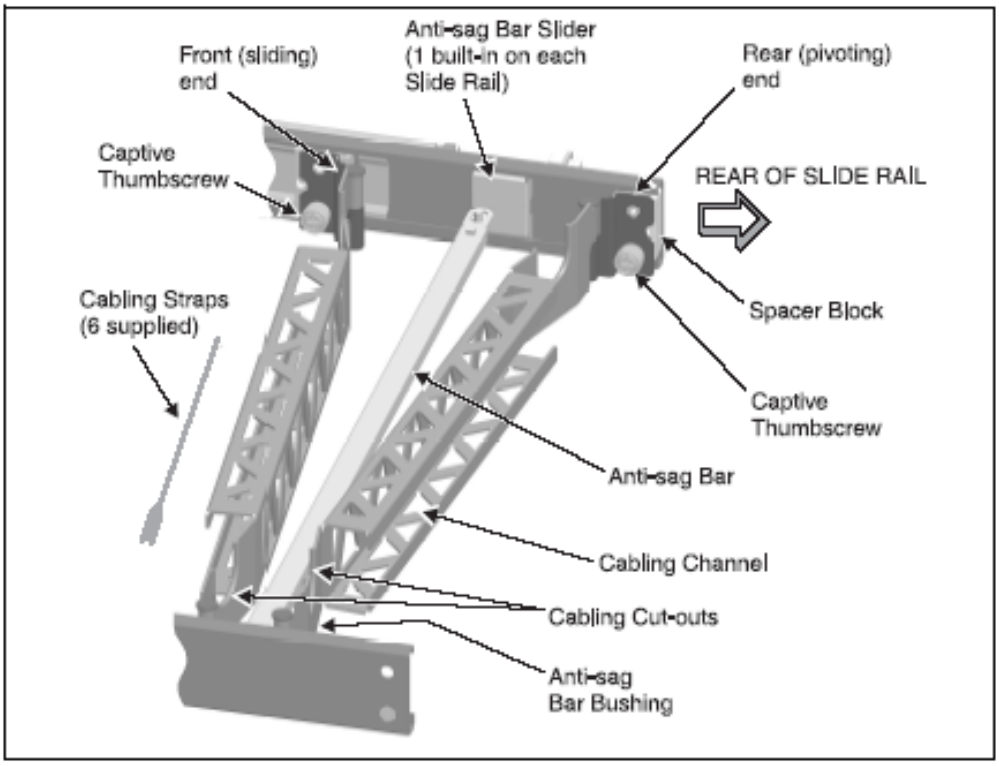
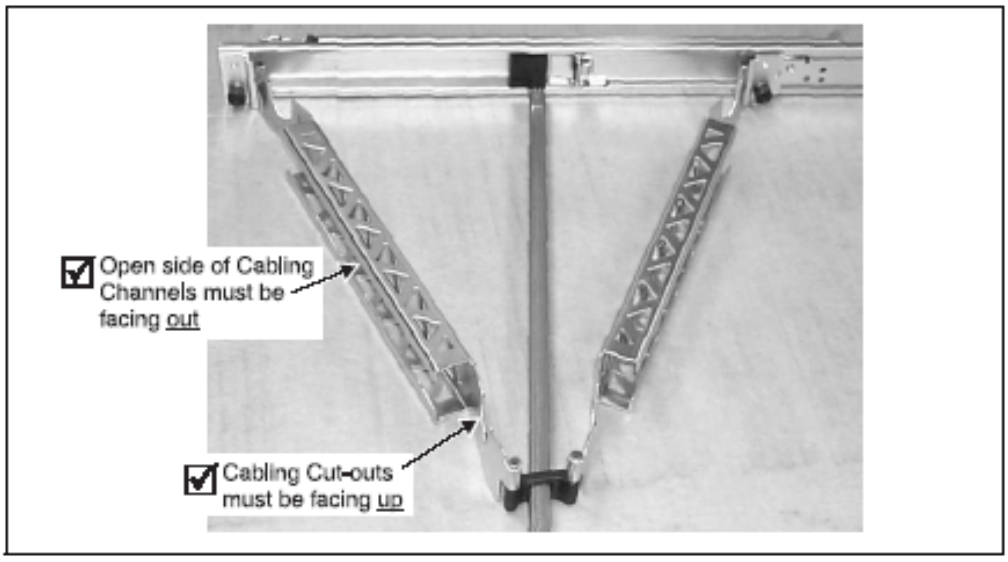
mounting position with the Slide Rail track. An overall view of the CMA and its details are shown below.



Required Installation Position of the CMA

The CMA can be installed on either the left Slide Rail or right Slide Rail (the mounting tabs on either end are identical). Regardless of the selected position, the CMA must be oriented as shown below to properly function.



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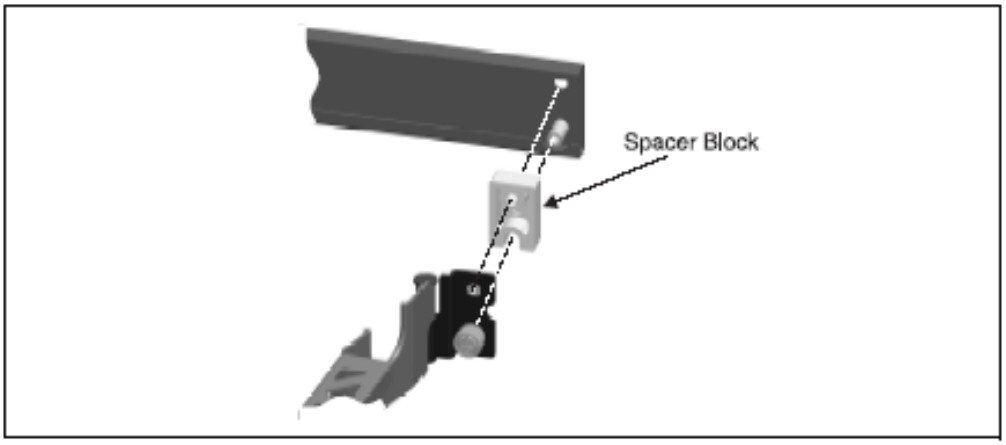
Installing the CMA on the Slide Rails

1.Pull the Slide Rails out to the fully extended (locked) position.

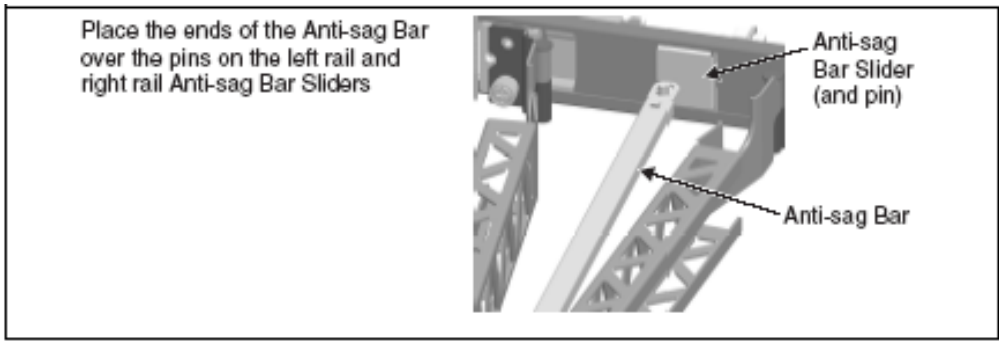
2.Loosely position the CMA in mounting position, noting the placement requirements specified above.

Note: The CMA is shipped with the Spacer Block not installed. Install the Spacer Block on the CMA mounting point chosen to be the rear (pivoting) end of the installed assembly.

3.Place the Spacer Block in mounting position on the end of the CMA chosen to be the rear (pivoting) end. Attach the CMA (along with Spacer Block) to the rear of Slide Rail using the captive thumbscrew.



4.Attach the Anti-sag Bar to the Anti-sag Bar Sliders on the left and right Slide Rails.


Place the ends of the Anti-sag Bar over the pins on the left rail and right rail Anti-sag Bar Sliders
Anti-sag Bar Slider (and pin)
Anti-sag Bar

5.At the front (sliding) end of the CMA, fully extend the CMA, then attach the CMA to the Slide Rail track using the captive

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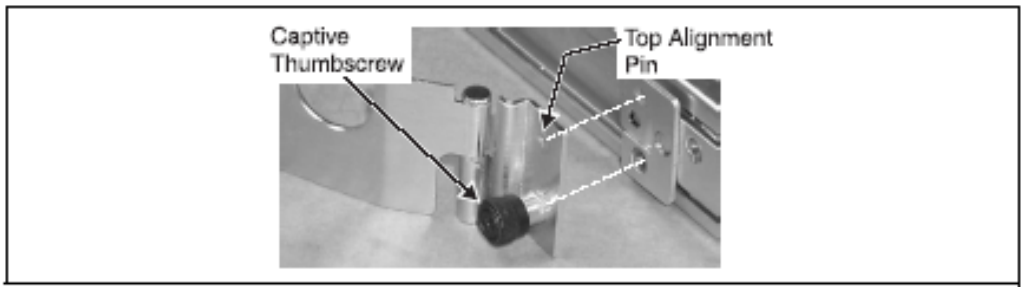
thumbscrew.



6.Press and hold the left and right Slide Extension Release Levers and slowly move the Slide Rails throughout their entire range of motion. Ensure the CMA folds and expands without binding. If binding is noticed, recheck mounting of CMA as described in Required Installation Position of the CMA.

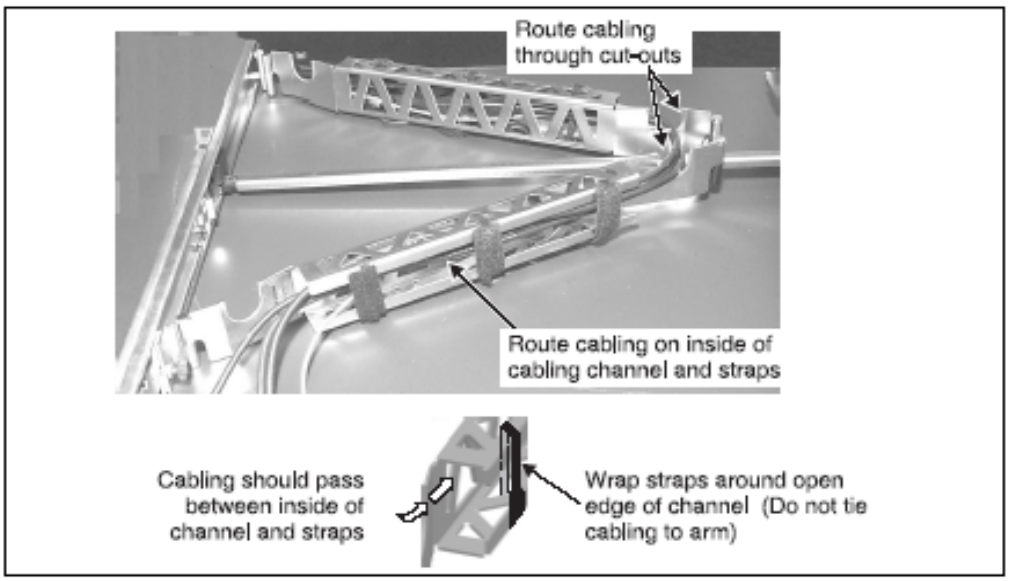
Placing and Securing Cabling Within the CMA

1.After installing the component in the Slide Rails, fully extend the Slide Rails until they lock.

2.Connect all required cables to the component.

3.Place the cables in the cable cutouts and into the cabling channels.

4.Use the six supplied straps to secure the cables within the cabling channels.



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5.Press and hold the left and right Slide Extension Release Levers and slowly slide the component throughout its entire range of motion to ensure that cabling is not strained or restricting movement of Slide Rails. Make certain cabling is not pinched when slides and CMA are in the fully retracted position.

General Safety Information

WARNING! WARNING statements indicate a possible hazard which, if not avoided, could result in personal injury or death.

Caution! Caution statements indicate a problem or unsafe practice which, if not avoided, could result in product or property damage.

Note: Note statements provide supplemental information.

WARNING !

- For complete safety and regulatory information, see your System Information document.
- This Slide Rail kit is intended only for use with components of 1 RU or 2 RU height.
- Maximum component weight: 18.2 kg (40 lb.) for 1 RU; 38.6 kg (85 lb.) for 2 RU.
- Installing components in a rack without the front and side stabilizers could cause the rack to tip over. Always install the stabilizers before installing components in the rack.
- Always load the rack from the bottom up. Load the heaviest component in the rack first in the lowest position.
- When preparing to install a component in the rack, always extend the Slide Rails into the locking position, and then slide the component into the Slide Rail mounting positions.
- Use caution when pressing the Slide Rail release latches and sliding the component in or out of the rack; the Slide Rails can pinch your fingers.

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- If component being installed into Slide Rails exceeds 22.6 kg (50 lb.), two persons should lift the component into the Slide Rails.
- NEVER use the Slide Rails as a step. Do not stand or sit on the Slide Rails.!

Caution !Ensure that the position selected for each installed component allows for proper ventilation of each component. Consult component documentation as required.

Note: Your system is safety-certified as a free-standing unit and as a component for use in a rack cabinet using the customer rack kit when both the rack cabinet and the rack kit were designed for your system. The installation of your system and rack kit in any other rack cabinet has not been approved by any safety agency. It is your responsibility to have the final combination of system and rack kit in a cabinet evaluated for suitability by a certified safety agency. The manufacturer disclaims all warranties and liability in connection with such combinations.

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Appendix C: Sensor Table

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This appendix shows you the Altos R510 sensor table details.

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Sensor Table

Sensor Name	Sensor #	Sensor Type
Physical Security Violation	0Ah	Physical Security
CPU1 12v	0Bh	Voltage
CPU2 12v	0Ch	Voltage
BB +1.5V	0Dh	Voltage
BB +1.8V	OEh	Voltage
BB +3.3V	0Fh	Voltage
BB +5V	10h	Voltage
BB +12V	11h	Voltage
BB -12V	12h	Voltage
FSB Vtt	13h	Voltage
MCH Vtt	14h	Voltage
SCSI Core (1.8V)	15h	Voltage
STBY +3.3V	16h	Voltage
Proc1 VCCP	19h	Voltage
Proc2 VCCP	1Ah	Voltage
Tach Fan 1	1Bh	Fan
Tach Fan 2	1Ch	Fan
Tach Fan 3	1Dh	Fan
Tach Fan 4	1Eh	Fan
Tach Fan 5	1Fh	Fan

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Sensor Name	Sensor #	Sensor Type
Tach Fan 6	20h	Fan
Tach Fan 7	21h	Fan
Tach Fan 8	22h	Fan
Tach Fan 9	23h	Fan
Proc1 IERR	24h	Processor
Proc2 IERR	25h	Processor
Proc1 Thermal Trip	26h	Processor
Proc2 Thermal Trip	27h	Processor
Proc1 Throttle	28h	Temperature
Proc 2 Throttle	29h	Temperature
Diagnostic Interrupt Button	2Ah	
Classis Identify Button	2Bh	
Proc1 Fan	2Ch	Fan
Proc2 fan	2Dh	Fan
Proc1 Core Temp	2Eh	Temperature
Proc2 Core Temp	2Fh	Temperature
CPU Configuration Error	30h	Processor

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Appendix D: SATA RAID Configuration

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This appendix shows you how to create SATA RAID.

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Configuring the onboard SATA RAID

This section briefly shows how to create RAID 1 (mirror) volume with onboard SATA RAID function.

How to enable the onboard SATA RAID function

Loading the BIOS default setting

1 Power on the server to start the system POST (Power On Self Test) process. During bootup, press <F2> to enter the BIOS setup screen.

2 Press <F9> to load BIOS default setting and press <F10> save the configuration changes and exit setup.

Enabling the onboard SATA RAID function

1 In the BIOS Setup Utility, move cursor to <Advanced>. Then select <IDE Configuration> and press Enter.

2 Move cursor to Configure S-ATA as RAID and press Enter to change the Options to [Enabled].

3 Press <F10> save the configuration changes and exit setup.

How to create RAID 1 volume

Enter the onboard SATA RAID Configuration Utility

When you see the Intel Embedded Server RAID information shows on the screen during the POST (Power-On Self Test), press <Ctrl> + <E> to enter the Embedded RAID Configuration Utility.

Loading onboard SATA RAID default setting

1 Select Objects from Management menu.

2 Select Adapter from Objects. The selectable adapter will be listed.

3 Press Enter on the adapter and the adapter setting will be shown on the screen. You can change the setting from this menu.

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4 Select Factory Default and YES to load the default settings.

5 Exit the configuration utility and press <Ctrl> + <Alt> + <Del> to reboot the server.

Creating RAID 1 volume

1 Select Configuration from Management Menu.

2 Select New Configuration from the Configuration menu and select YES to continue. An array selection window displays the devices connected to the current controller.

3 Press the arrow keys to choose specific physical drives and press spacebar to associate the selected drive with the current array. The indicator for selected drive change from READY to ONLINE

4 Add 2 drives to current array and press <Enter> to finish creating current array.

5 Press Enter again to select array to configure.

6 Press spacebar to select the array and press <F10> to configure the logical drive

7 The default RAID level for 2 disk drives is RAID1. Just select Accept to use the default setting and press <Enter> to return to the ARRAY SELECTION MENU.

8 Press <Enter> to end the array configuration.

9 Select YES to Save Configuration and press any key to return to the Configure menu.

Initialising RAID Volume

1 Press <Esc> to return to the Management Menu.

2 Select Initialize from Management menu. All logical drives should be listed under Logical Drives.

3 Press <Spacebar> to select drives for initialization. The selected drive will be shown in yellow.

4 After selecting the drives, press <F10> and select YES to start the initialization process.

5 When initialization is complete, press any key to continue.

6 Press <Esc> to return to the Management Menu.

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Saving and Exiting the Embedded RAID Configuration Utility

1 When RAID configuration and initialization is complete, press <Esc> in the Management Menu and select YES to exit the Embedded RAID Configuration Utility.

2 Press <Ctrl> + <Alt> + <Del> to reboot the server. Now you can start installing an OS on the RAID array.

NOTE: You can find the onboard SATA RAID driver in the EasyBUILD™ Resource CD and SATA RAID utility in the EasyBUILD™ Management CD.

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Index

A

Acer Server Manager (ASM) 159
- system requirements 159
  - ASM Agent 159
  - ASM Console 159
- system setup 159
  - install ASM Agent 159
  - install ASM Console 160

B

BIOS setup 25, 95, 145
- Advanced 101
  - Boot Settings Configuration 119
  - PCI Configuration 115
  - Peripheral Configuration 119

C

Caring features 5

E

ESD precautions 31
External 16

F

Front panel 16, 21

G

Graphics 4

I

I/O ports 4
Installation precautions 31
Installing and removing storage devices 83
Installing expansion cards 37, 38
Internal components 22

J

Jumper (JP1) settings 15

M

Memory 3

N

Networking 4
Notices iii

O

opening the system 33
Opening your system 33

P

package contents 25
Post-installation instructions 32
Preinstallation instructions 31
Preinstallation requirements 25
Processor 3
Product 3

R

Rack installation 169
- Screw types 168

Rear panel 20
removing the top panel 33
replacing the top cover 35

S

Secure mode 127
Serial ATA ports 5
Storage 4
system upgrade 31
- ESD precautions 31
- post-installation instructions 32
- preinstallation instructions 31

T

turning off the system 26
turning on the system 26
- power-on problems 27

U

Upgrading the CPU 83
Upgrading the system 31

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